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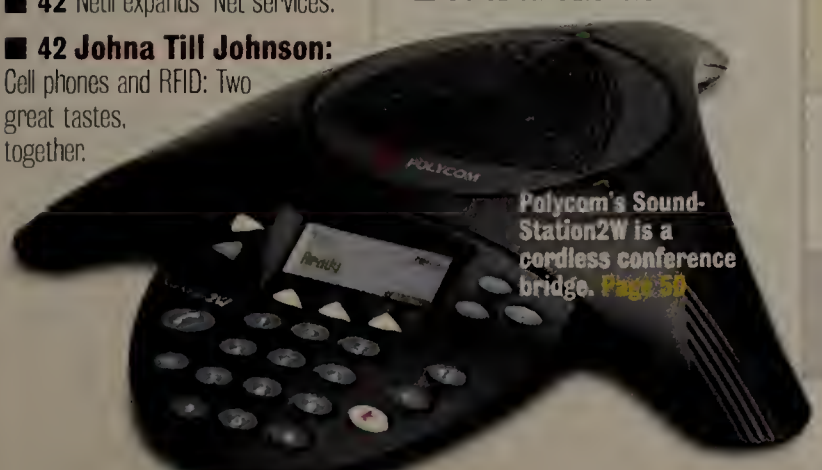
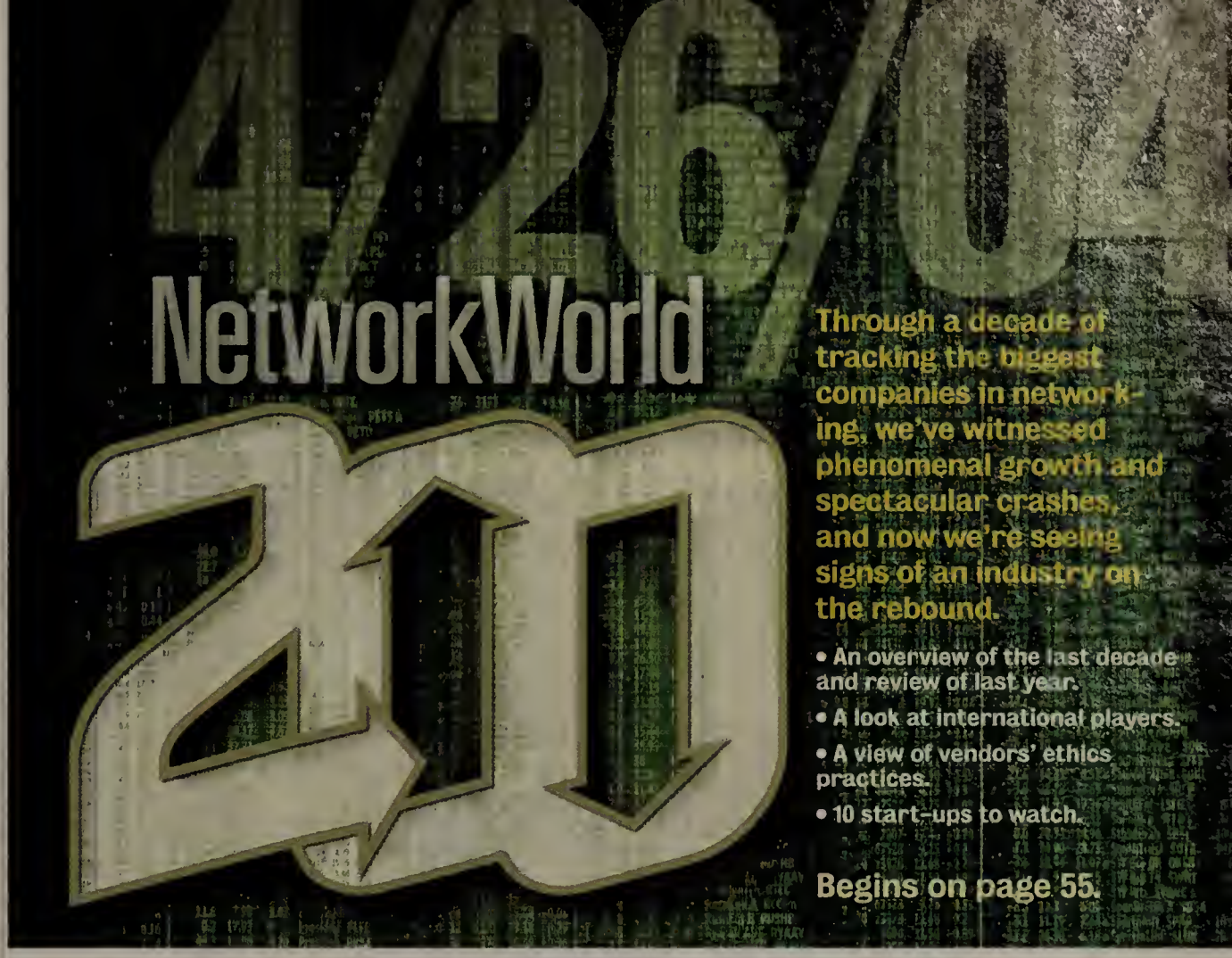


Polycom's SoundStation2W is a cordless conference bridge. Page 50



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- A look at international players.
- A view of vendors' ethics practices.
- 10 start-ups to watch.

Begins on page 55.

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Columnists

Wireless Wizards

Blocking signals

A reader asks the Wizards how he can block or interrupt RF clients from receiving a signal while connected to a wired network. **DocFinder: 1743**

Small Business Tech

Reclaim your computer

Columnist James Gaskin looks at spam and pop-up blockers that make computing fun again.

DocFinder: 1745

HomeLAN Adventures

Cool Tools comes home

Network World Product Testing Editor Keith Shaw debuts his consumer networking and entertainment column.

DocFinder: 1744

Weblogs

A Quantum Leap in Crypto

Senior Editor Ellen Messmer talks to IBM research scientist Charles Bennett, who teamed with University of Montreal's Gilles Brassard two decades ago to invent the BB-84 quantum-crypto protocol, which has withstood the test of time.

DocFinder: 1740

Most Unwired

Senior Editor John Cox examines Intel's annual "Most Unwired" survey to identify the 100 most unwired college campuses. **DocFinder: 1741**

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News

User group defines security needs

■ BY CAROLYN DUFFY MARSAN

FREDERICK, MD. — An influential, industry user group is tackling a problem that has stumped many network executives: how to create an enterprise security architecture.

The Network Applications Consortium (NAC) plans to publish a document this summer that outlines the principle, policies, standards, technologies and processes necessary to protect a company's information assets. NAC's Enterprise Security Architecture addresses hot topics in cybersecurity such as governance, technology architecture and operations.

The document will affect how several major corporations — including Bechtel, Boeing, GlaxoSmithKline and State Farm Insurance — make network hardware and software purchases in the future, network executives at these companies say.

NAC members also plan to use the document to influence how key network vendors such as Cisco, Entrust, Microsoft and Symantec create security products. The consortium plans to embrace several security standards — selections have not been finalized — and urge vendors to adopt these standards.

Network executives from several multinational corporations last week participated in a two-day meeting to review and refine the latest draft of the security architecture document. NAC gave Network World a sneak peek at the document and an exclusive opportunity to interview NAC members about their cybersecurity efforts.

NAC's leadership says its Enterprise Security Architecture is the most important document the group has crafted in several years.

"This document is something that we hope will become a common reference point" for our members when they purchase and deploy security products, says NAC Chairman Fred Wettling, infrastructure architecture manager at Bechtel. "It's been a couple years since we've produced a document of this scope."


DAVID BAILEY

"This document is something that we hope will become a common reference point [for enterprise security architectures]."

Fred Wettling
Chairman of the Network Applications Consortium and infrastructure architecture manager at Bechtel

NAC started work on Enterprise Security Architecture last October, when member GlaxoSmithKline asked for help developing a comprehensive security architecture. A dozen NAC members have worked regularly on the document, which is in its 10th draft. NAC officials expect the document to be finalized by August.

"Everyone was in various stages of putting security architectures together," Wettling says. "State Farm Insurance was further along than the rest of us, but we were all grappling with this issue."

The document's goal is to create a framework that lets companies mix and match security products from different vendors while assuring interoperability and manageability.

The 59-page draft document outlines a framework that a company can use to ensure the confidentiality of information, integrity of data and the availability of IT resources. It is written for corporate decision-makers, such as network, IT and C-level executives.

The draft document doesn't detail what a company's security requirements should be or the types of security products it should deploy. Instead, it provides a methodology for managing information-security risks to an acceptable level and in a cost-effective way.

NAC members say they are

See NAC, page 20

WilTel takes aim at corporate customers

■ BY DENISE PAPPALARDO

Best known as a carrier's carrier, WilTel Communications plans to make a run at enterprise network customers next month with services ranging from private lines to IP VPNs.

When it formally airs its services at NetWorld+Interop in Las Vegas the week of May 11, WilTel will stress the reliability and capacity of its network — a 30,000-mile, OC-192 fiber-optic backbone like that of Tier 1 carriers. Company officials say WilTel will offer rates about 10% lower than competitors, but wouldn't get more specific on pricing.

The company's suite of service appears to be comprehensive, but it's unclear how innovative the offerings will be. The initial set of services, some of which it has been offering to enterprise customers since January, include dedicated Internet access, private line and voice, Multi-protocol Label Switching-based (MPLS) IP VPNs and transparent LAN. VoIP services are planned, company officials say.

Service selection

WilTel says it will support a variety of standard and enhanced services for business users.

Available now:

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- VoIP.
- Managed storage-area network.

The carrier is offering design, installation and management of customer networks, as well as the ability to pull fiber to specific customer locations to offer on-net connectivity, says Tony Tomae, senior vice president of marketing.

Industry watchers say WilTel has plenty of challenges ahead in the enterprise network market, including lack of name recognition and a shaky recent financial history. The company is also making its move at a time when the industry could further consolidate and become more competitive after MCI's emergence from bankruptcy protection (see page 12).

"This is still a brutally competitive market," says Rod Woodson, program leader at consulting firm Frost & Sullivan. "If they can get their foot in the door they're going to be sitting down at the table with five to 10 players that will be well known by the customer."

WilTel officials say the carrier's low profile could work to its advantage. A marketing message on the company's Web site, in reference to its 1,100 wholesale customers, says: "We're glad you never heard of WilTel. Because if we'd failed the nation's largest carriers and IP providers, they would have blamed us by name."

The carrier initially will target a handful of vertical markets including financial, healthcare, insurance, education and government. That focus is made necessary in part by the fact that WilTel's national sales team for business services of between 25 and 100 people is dwarved by those of leading competitors AT&T and MCI, which boast sales staffs of 7,500 and 5,000-plus people, respectively.

When visiting a potential customer "you have to walk in the door with more than just one person," says Mike Smith, managing partner at consulting firm Stratecast Partners. There have to be people who are knowledgeable about the company and other people who can talk about the technical aspects of a

See WilTel, page 18

VPNs
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News Bits

FCC shoots down AT&T VoIP proposal . . .

The FCC last week rejected a petition from AT&T that would have let the company avoid paying its telecom competitors access charges on telephone calls partly carried on IP networks. The FCC said traditional telephone calls that start and end on the public switched telephone network, but are carried part of the time on AT&T's Internet backbone, are classified as telecom service. Those calls are subject to the access charges that are exchanged when a telephone call made through one carrier ends on another carrier's network. AT&T had asked the FCC for clarification on whether these phone calls should be classified as information services, like most other Internet-based traffic, and free from most FCC regulation. The FCC recently decided that the free, VoIP service, Free World Dialup, was exempt from most telecom regulations. Free World Dialup lets members talk to each other through software installed on their computers. The service does not let members place voice calls to non-members. But the FCC said AT&T's service fit squarely into the definitions of a telecom service because the phone calls start and end on the PSTN.

. . . Then calls truce with NextWave

NextWave Telecom, which has battled the FCC for eight years over spectrum ownership, is walking away with some valuable licenses. The FCC said last week that NextWave will be allowed to retain ownership of some of the most lucrative licenses for $1.1 billion. NextWave originally agreed to pay $4.74 billion for Personal Communication Services' spectrum in 1996 when the company bid and won hundreds of spectrum licenses in an FCC auction. But when NextWave defaulted on its payments and filed for bankruptcy protection, the government tried to repossess these licenses. A protracted court battle ensued, and the Supreme Court ruled in NextWave's favor last year. Under terms of the new deal NextWave keeps most of the licenses in prime markets such as Baltimore, Boston and New York. The deal is subject to the approval of a federal bankruptcy court in New York, where NextWave hopes to emerge from Chapter 11 protection by year-end.

Citrix plans update

Citrix Systems plans to make several product and business announcements this week as part of its annual Analysts Day in New York. Some resellers and users expect the release of Version 3.0 of MetaFrame Presentation Server, code-named Hudson. Changes include streaming video improvements; dynamic session reconfiguration, which lets users disconnect from a session and reconnect with different screen resolution and colors; and a Web interface that supports Independent Computing Architecture and Remote Desktop Protocol clients. The company also might announce a new version of Password Manager, which is software for creating a single sign-on for users from any device.

More turmoil at CA

Computer Associates' management shake-up is unlikely to affect customers or dramatically change the company's products plans and strategy, customers and analysts said last week. By removing Sanjay Kumar as the company's CEO, CA defused mounting pressure to clean house and clear its executive ranks of all involved in its past accounting violations. More than a dozen employees have been pushed out of CA in the past six months as the company tries to put behind it years of questions and investigations into bookkeeping practices. In his three years as CEO Kumar expanded CA's management team and improved customer support, says analyst Michael Dortch of the Robert Frances Group. Paul Francis, senior manager of systems security for Shaw's Supermarkets, says he's sad to see Kumar go but doesn't expect any negative repercussions. The West Bridgewater, Mass., grocery chain uses CA's eTrust security software. "Things have been pretty smooth with CA in spite of what's happened," he says. "There's a good management team in place. I don't expect any disruption."

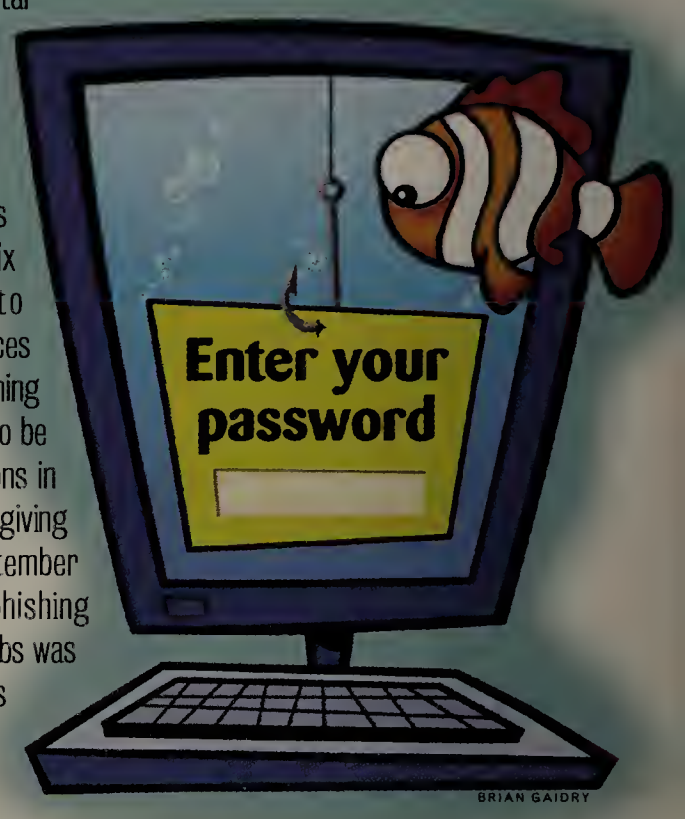
Storage speed limit?

Scientists say that if vendors were to speed up their storage devices 1,000 times, data integrity would come to a screeching halt. Researchers at Stanford University, a scientist from the Landau Institute for Theoretical Physics in Moscow and engineers at Seagate Technologies reported this fact in the journal *Nature*. By using a particle accelerator that shot electrons at a piece of magnetic material, the test showed the high energy involved makes some of the magnetic changes happen randomly rather than predictably and reliably. In the real world, though, this isn't a problem. Makers of magnetic disks, which can store and retrieve data at speeds of up to several billion bits per second, are nowhere near this theoretical limitation.

The Good The Bad The Ugly

Microsoft settling in. In announcing last week it has settled a class-action lawsuit alleging it violated Minnesota's anti-trust laws, Microsoft now has settled three major suits this month. It earlier agreed to pay Sun nearly $2 billion to end an anti-trust lawsuit and announced a $440 million settlement with InterTrust Technologies regarding digital rights technology patents.

Gone phishin'. The number of "phishing" e-mails in circulation has exploded over the past six months, according to messaging security services vendor MessageLabs. Phishing refers to e-mails claiming to be from legitimate organizations in order to trick victims into giving up personal data. In September 2003, the number of phishing e-mails seen by MessageLabs was 279. By March 2004, this figure had risen almost 800-fold to 215,643. ➤



Sex.com talk. VeriSign has agreed to pay $15 million to settle a decade-old lawsuit saying the company improperly switched the Sex.com domain name from one owner to another, according to a *San Jose Mercury News* report last week. Gary Kremen, known best as the founder of online dating site Match.com, said that VeriSign transferred the URL to another person who used it for a porn site. The settling parties would not comment, according to the *Mercury News*.

COMPENDIUM

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Died Online is the Next Big InterWeb Thing: "You login to the system every few days, or whatever time period you set it at. If you don't login within that certain amount of time, the system will e-mail all your friends with your custom 'Hey, I'm dead now' message." ***Read more at www.nwfusion.com, DocFinder: 1746.***

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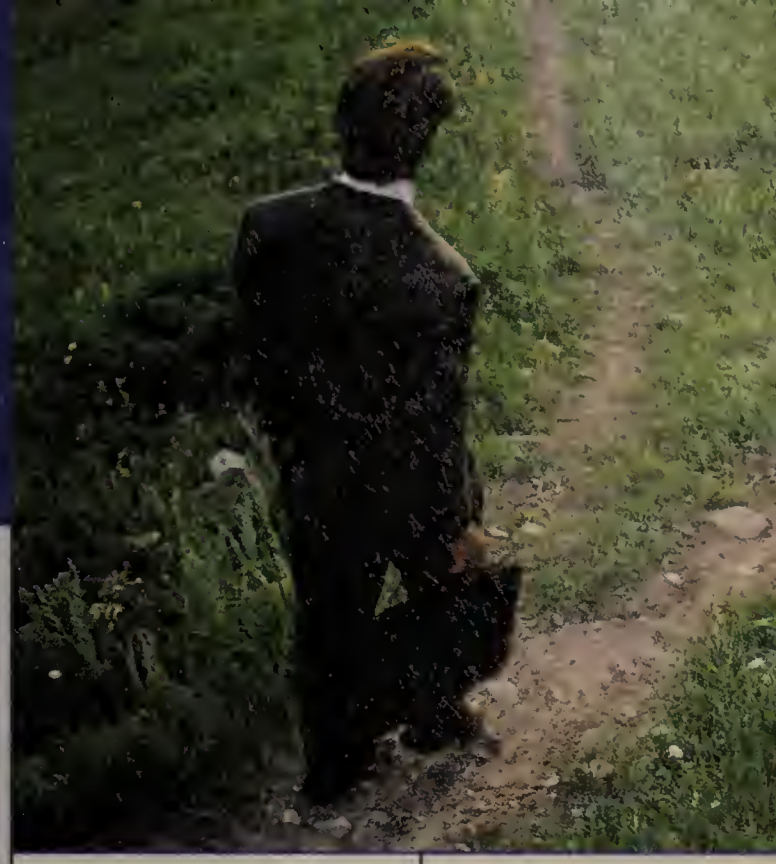

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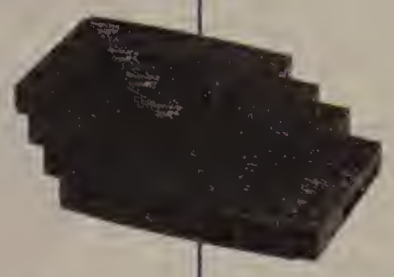

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network world 04/04

MCI shakes off Chapter 11 mantle

■ BY DENISE PAPPALARDO

MCI emerged from Chapter 11 bankruptcy protection last week with a mere $6 billion in debt, 27,000 fewer employees and cash in the bank.

President and CEO Michael Capellas likened MCI's past 20 months to "running a marathon with hurdles." With $6 billion in cash, MCI is "in a strong cash position," he says, trying to put a good face on otherwise dire financials.

According to the monthly reports MCI has had to file with the bankruptcy court, 2003 revenue was down 25% to $24 billion (the company reached $39 billion in 2000) and losses for the year were $58 million.

But the bankruptcy process helped MCI wipe more than $30 million worth of debt from its books.

By comparison, AT&T finished 2003 with sales of $35 billion, profits of $1.9 billion, $4.3 billion in cash and investments, and $13 billion in debt.

Emerging from bankruptcy can only help MCI, but clearly it faces huge challenges. Here are how some interested parties add it up:

• **Building revenue.** "This is true for everyone, but it's MCI's No. 1 challenge," says David Rohde, senior analyst at TechCaliber Consulting. MCI has to lure traffic away from other carriers, especially with those MCI customers that have traffic with AT&T, Sprint or another carrier.

• **Keeping me happy.** In an analyst call last week Capellas said MCI "wants to go after the enterprise and switch from being a farmer to a hunter," says Lisa Pierce, a vice president at consulting firm Forrester Research. But now might not be the best time to stop cultivating the crops.

"All of the other carriers are aggressively pursuing us," says Dan Agronow, vice president of technology at Weather.com in Atlanta. MCI has made concerted efforts to keep Weather.com happy through the troubled days, and Agronow says he hopes those efforts continue as MCI tries to win new customers.

"MCI's services have been excellent, and the sales support has been excellent," he says. "They need to keep that up while keeping competitors off."

Holding on to existing accounts will build confidence with potential customers, Agronow says. Building confidence is a big challenge for MCI.

DRAKE SORFY

President and CEO Michael Capellas likened MCI's past 20 months to "running a marathon with hurdles."

• **Keeping up with the Joneses.** "MCI has done a good job in customer service but has done a poor job moving beyond that," Rohde says. "They still have a high expense structure, and their revenues are going down. They haven't kept up with competitors."

Analysts agree that playing catch-up is going to be tough in this market.

The carrier is also behind on its international network build-out aimed at supporting all its enhanced IP services, such as its VoIP MCI Advantage service and its network-based VPN service outside the U.S., which is based on Multi-protocol Label Switching (www.nwfusion.com, DocFinder: 1749)

• **Wireless, wireless where for art thou wireless.** Capellas talks about wireless, but the company still doesn't have a deal in place, Pierce says. All MCI has is its SkyTel paging business that it cannot use to support 3G wireless voice services.

Capellas says MCI isn't interested in buying a mobile service provider, but expects to partner with an existing carrier.

The only wireless providers MCI can possibly partner with are companies that don't already have ties to competitors, Pierce says. "That leaves Nextel and T-Mobile," she says. Both have good coverage in some cities, but both have dead zones in areas throughout the U.S.

• **Uncertain future.** While emerging from bankruptcy with the majority of its company intact, MCI two years from now could look very different, Rohde says.

Analysts have speculated that MCI will be acquired after it emerges from bankruptcy. While they are not pointing toward any one candidate, Verizon did make a bid for WorldCom back in 2001.

With the RBOCs contemplating their national service options, and international carriers eyeing the lucrative U.S. market, it's unclear if MCI will remain independent. With that in mind users should only sign contracts that don't go beyond two years, Rohde says. ■

Security flaws occupy router vendors, ISPs

■ BY JIM DUFFY, ELLEN MESSMER AND PHIL HOCHMUTH

Router vendors and their ISP customers last week scurried to patch two security holes that could enable denial-of-service attacks and knock out Internet service to enterprise users.

The first vulnerability, in TCP, would let hackers create a DoS attack by interrupting Border Gateway Protocol (BGP) sessions that use TCP, according to the U.K.'s National Infrastructure Security Co-Ordination Centre (NISCC). BGP is the main routing protocol the Internet uses.

The second was specific to Cisco routers, through which the majority of Internet traffic flows. The vendor discovered a flaw in the way certain versions of its IOS software process SNMP traffic that could corrupt router memory and force the device to restart unexpectedly, disrupting service to enterprise and service provider customers.

Some users considered the TCP/BGP problem the more serious of the two. Argonne National Laboratory, a U.S. Department of Energy research facility in Chicago, has decided to accelerate and broaden the rollout of packet authentication on some of its BGP routes to help thwart DoS attacks.

"Picking up the pace on that is a good thing to do," says Scott Pinkerton, network solutions manager at the lab.

Rockwell Automation information security specialist Paul Watson, who discovered the TCP vulnerability, shared his findings last week at the CanSec West conference in Vancouver in his presentation "Slipping in the Window: TCP Re-Set Attacks." The NISCC was the first to issue a public alert, followed hours later by the U.S. Department of Homeland Security with assistance from CERT.

Watson revealed a new twist on "classic attacks against TCP," and one that primarily affects BGP routers, says Shawn Hernan, senior member of the technical staff at CERT. If the attacker can guess the packet sequence in the range known as the "window size," he can spoof the port number and source address and put a packet on the wire that the receiver will accept as a valid packet.

If it's a re-set packet, the spoofed packet can cause the session to be torn down. To prevent this exploitation, ISPs and large corporations that use BGP routers are urged to make use of what's called the MD5 hash — a cryptographic process for checking packet authenticity from the sender to the receiver, although some in the industry have expressed concern regarding MD5's processing overhead (www.nwfusion.com, DocFinder: 1750).

Whether MD5 is the remedy, some ISPs are fortifying their networks proactively. Without providing details because of security concerns, MCI says it is working with its vendors and customers to ensure its network remains secure, a spokeswoman says.

MCI's network was operating normally last week, she says. AT&T and Sprint did not comment by press time.

Meanwhile, among the router vendors, Cisco last week issued security advisories, software fixes and planned fixes, and workarounds on the TCP vulnerability for its IOS-based and non-IOS-based systems. As of last week, no Cisco customers reported any exploitations to the vendor, a spokesman says.

Juniper also says it is not aware of any customers having been affected by this vulnerability. The vendor says it modified its TCP stack to reduce the likelihood of a successful attack.

Avici Systems says the TCP vulnerability is "not a realistic attack mechanism" for carrier core routers because most carriers do not make it possible to reach the BGP applications on the core router via the Internet. As a result, none of Avici's customers have been affected, says Esmeralda Swartz, Avici director of product and strategic marketing.

But Cisco customers had to grapple with an IOS SNMP message handling vulnerability in addition to the TCP hole. According to Cisco, the SNMP breach affects routers and switches running IOS versions 12.0 through 12.3.

Cisco says that it patched the flaw and published information on updating IOS with new versions of the operating system.

Oliver Fredrichs, senior manager with Symantec security response, says code to launch a DoS attack is available on the Web. "We consider this a serious threat, but that being said, a number of our customers have had access to the patch for this vulnerability for sometime now," he says.

The IDG News Service contributed to this report.

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Onaro aims to predict SAN problems

SANscreen product designed to find configuration errors before changes are implemented.

■ BY DENI CONNOR

Start-up Onaro this week is scheduled to introduce its SANscreen product, which the company says predicts problems with storage-area network configurations that could give access to the wrong users, cause bandwidth problems or let applications fail.

Onaro is developing software to run on heterogeneous SANs consisting of equipment from a variety of vendors, including Brocade, EMC, HP and McData.

SANscreen uses a wizard-based data-entry screen to let administrators enter information about tasks that will change the configuration of the SAN. The software, running on a central server, creates a simulation of the planned changes and their potential affect on the SAN, finds errors and determines their effect before the changes are implemented.

For example, say a user plans to add another server to the SAN and needs to provision storage to that server. If he unintentionally links the server to a partition of storage that contains the payroll database, breaches could occur. Onaro's SANscreen could warn the user of the incorrect configuration before it's made.

One organization that has looked at Onaro's SANscreen is the NASA Goddard Space Flight Center in Greenbelt, Md.

"If you are planning on adding a switch or reconfiguring something, you can get the software to plan it for you," says Ben Kobler, a computer scientist at NASA Goddard.

"You put in the changes you are going to make, and [SANscreen] will tell you whether a previously legal or illegal configuration is going to occur," Kobler says. "It is very easy to configure, and it sends us e-mail whenever a change is made to the SAN."

Analysts say that while Onaro's approach to SAN management is unique, the company is not without competition. Onaro competes in some ways with companies such as AppIQ, Creekpath and Invio.

"Onaro is unique in its ability to look at the connections you are trying to set up. There's some work you need to do upfront defining the intentions of your connections," says Mark Farley, president of consulting firm Building Storage. "SANscreen looks at the totality of the connections and whether you want them or don't want them. That's fundamentally different than other SAN management products out there."

The company is advised by Frank Moss, co-founder of Tivoli, which IBM acquired; Bowstreet; and the defunct Agillion, a Web-based CRM company for small and midsize businesses.

SANscreen is priced by the size of the SAN and the number of ports on a Fibre Channel switch, sources say. The company declined to give details or pricing on its product. ■

PROFILE: ONARO

Location:	Boston
Founded:	January 2002
Product:	SANscreen, predictive change management software for SANs.
Shipping:	Late second quarter
Founders and management:	Shai Scharf, CEO, from Composit Communications; Roy Alon, vice president of product development and field operations, from Israel Defense Forces; Assaf Levy, vice president of product management from Algotec Systems.
Funding:	$7.75 million
Fun fact:	Onaro cames from the name of the Japanese restaurant where the founders hashed out what the company would do.

Nuance app uses voiceprints to identify callers

■ BY ANN BEDNARZ

Voice technology specialist Nuance this week is expected to unveil a call center application that uses voiceprints to authenticate customers over the phone before letting them access private information and secure transactions.

Instead of using conventional touch-tone passwords, callers can identify themselves using their voices with Nuance Caller Authentication 1.0. The application, which runs on Windows 2000 and sits in front of a company's computer telephony integration server, compares words spoken by a caller to those stored in a pre-recorded voiceprint. Nuance describes a voiceprint as a matrix of numbers that reflect the physical characteristics of a person's vocal tract, and behavioral characteristics related to the way a person speaks.

The Nuance software validates or rejects the identity of a caller before allowing access to a company's other call center systems. Once positively identified, a caller can perform automated functions, such as making a payment, checking an account balance or authorizing a stock trade, using traditional interactive voice response systems.

One important feature is that Nuance wraps back-up questions, such as asking a person to press or say the last four digits of his Social Security number, into the verification process, says Bill Meisel, president of research company TMA Associates.

Companies don't want legitimate customers turned away frustrated because the system can't positively identify the physical characteristics of their voices over a weak cell phone connection or in a noisy airport setting, he says. Using a combination of biometric and standard voice automation tools to verify callers is appealing to users.

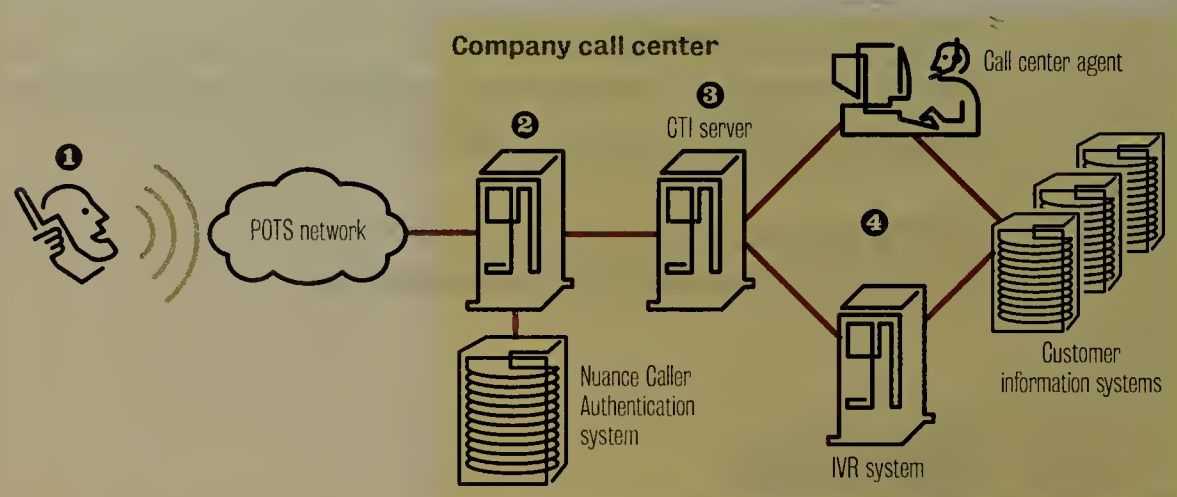
Nuance Caller Authentication is built on top of the vendor's existing Verifier voice authentication platform. The new application bundles a pre-built voice user interface with standard configuration settings and reporting tools for tracking metrics such as user enrollment, call volume and security events.

Using Nuance's bundled application, rather than building an application from scratch, can speed deployment time from a typical 12-month cycle to four or five months, says Regina Carriere, senior product marketing manager at Nuance.

Nuance Caller Authentication 1.0 costs $2,700 per port. Its competition includes ScanSoft's SpeechSecure speaker verification technology. ■

Straight talking

Nuance's Caller Authentication application compares a speech sample with an existing voiceprint before letting a caller access private information and conduct transactions.



1. Caller says phone number or account number, plus the Nos. 1-9, for identification.
2. Nuance Caller Authentication pulls the account holder's voiceprint from its verification database and compares it to the words the caller just spoke.
3. The Nuance application positively identifies the caller, then sends the caller's verification status to other call center systems via a computer-telephony integration (CTI) server.
4. Caller is allowed access to company's interactive voice response (IVR) system to complete transactions with customer information systems, such as account balances, or is transferred to an agent.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VMware promises support for 64-bits

■ BY JENNIFER MEARS

VMware last week vowed to support the 64-bit architectures of Advanced Micro Devices and Intel with its virtual machine software for Windows and Linux.

The software maker, which EMC acquired earlier this year, said support will be rolled out over the next 18 months, beginning with the next update to VMware Workstation.

Expected to be available this quarter, the update to VMware Workstation 4.5 will cost $189 and will include support for 32-/64-bit hosting operating systems, running on servers powered by AMD's Opteron and Intel Extended Memory 64 Technology, says Michael Mullany, vice president of marketing for VMware.

In February, Intel announced it would update its Xeon processors with 64-bit extensions, beginning with a dual-processor chip, codenamed Nocona, which is scheduled to be introduced in the next couple of months. Dell, HP and IBM have said they will roll out servers based on the chip.

Oak Associates, a money management firm in Akron, Ohio, has used VMware's GSX and ESX products for nearly a year. Scott Hill, senior technology officer at the company, says he's happy to hear VMware plans to support 32-/64-bit capabilities.

Getting virtual

Gartner says companies that don't use server virtualization technologies will spend

25%

more annually for hardware, software, labor and space for Intel servers by 2008.

Hill says he's looking at the new 32-/64-bit chips, but likely won't deploy servers based on them for a least a year, so he's happy with VMware's timeline.

"To be able to have on the same machine a 32-bit and a 64-bit operating system is important," he says. "There are a lot of machines that we have that don't require a lot of power, so they'll remain on the 32-bit platform. But then [VMware] will give us the ability to test the SQL environment, for example, in 64-bit mode [on the same physical server] to see what kind of benefit we'll get out of that."

In addition, with VMware's host operating system supporting 64-bit platforms, there will be more memory available for more guest machines, Hill says. ■

Zultys brings VoIP to branch offices

■ BY PHIL HOCHMUTH

Zultys Technologies this week is scheduled to announce a gateway designed for extending the benefits of VoIP to branch offices.

The company's MX25 gateway sits in a branch office and connects to a Zultys IP PBX in a central site. This setup lets companies cut down on long-distance charges by carrying office-to-office calls over existing IP WANs, the vendor says.

The gateway also can be used to bring presence management and Session Initiation Protocol (SIP)-based applications such as unified messaging to branches, Zultys says.

The MX25 initially will work with Zultys' MX250, an IP PBX for businesses with up to 250 phones. Although the MX250 could be used alone to support remote IP phones, the gateway provides a number of benefits, according to Zultys. For example, the MX25 lets branch IP phones connect to an emergency public switched telephone network in case of a WAN link failure. The MX25 also can be used to connect analog devices to an MX250, such as emergency phones.

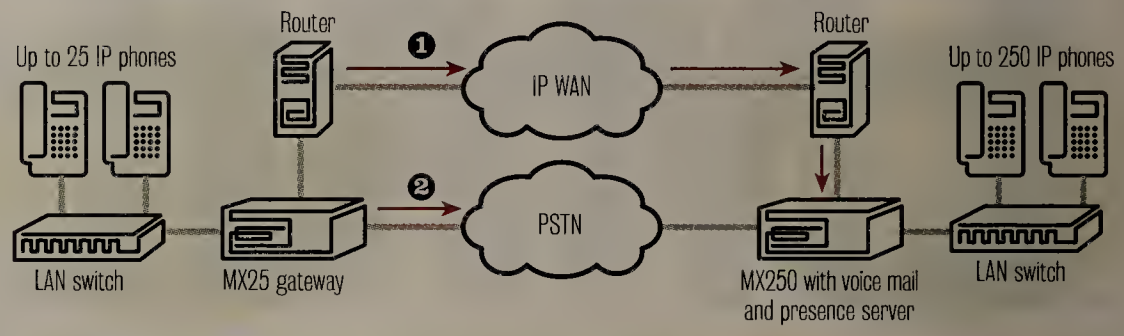
Zultys' MX line of IP PBXs is based on Linux servers and runs call control and application software based on SIP. The MX1200, announced last year, supports networks of up to 1,200 phones. The MX25 gateway is a small appliance and not a full Linux server with a hard disk and RAM.

The combination of the MX25 and MX250 competes with other IP PBX/gateway combos such as Cisco's CallManager with VoIP-enabled routers, 3Com's VCX and NBX platforms, Alcatel's OmniPCX products, Avaya's S8700 and G600 gateways, and Nortel's Succession IP PBX and BCM branch-office boxes.

The MX25 starts at $1,300 for the base chassis. An eight-port analog card costs $800; ISDN and T-1 interfaces cost $1,200. ■

IP for everyone

Zultys' new MX25 gateway is designed to bring the benefits of VoIP to branch offices.



❶ The MX25 lets branch office employees call the central office and other branches over the IP WAN, eliminating long-distance charges on the PSTN; employees also gain access to applications supported by the MX250 IP PBX.

❷ However, if the IP WAN is down or local calls are being made, the gateway can deliver calls directly to the PSTN.

Vendors target WAN app performance management

■ BY DENISE DUBIE

Three vendors are set to offer products that could help customers make better use of bandwidth to ensure better application performance.

Compuware upgraded its Vantage application performance management software with new features that report bandwidth consumption by application and user. Vantage software runs on a Windows server, and passive agents reside on client machines.

Company officials say Vantage 9.1 now can tell customers how much bandwidth critical applications, such as order processing, use. Network managers can use the information to prioritize applications and reallocate bandwidth. The Vantage suite monitors application performance across the network by measuring server response times, network latency and bandwidth utilization.

Compuware competes with Mercury Interactive, which also this year upgraded its tools to more closely monitor application performance (see related story, page 35).

Vantage 9.1 is priced at about $25,000.

Meanwhile, Pivia Software also plans to tackle bandwidth consumption and network latency. The company this week is set to announce its Pivia Performance Server (PPS) 4.0, software that now can track the performance of portal applications. The software can distinguish which application among the integrated applications in a portal is performing. PPS software is installed on a Linux server, typically in front of Web servers and in back of load balancers in a data center. If there is no load balancer, the box sits in front of a router and firewall.

The company also will unveil PPS Remote software that further speeds WAN delivery of applications to remote users. The remote edition will boost application performance over the WAN by up to tenfold, the company says. To achieve that performance, PPS Remote must be installed on a Linux server at remote locations.

With the remote edition, PPS watches application packets and caches and decaches them on either side of the connection. The company competes with similar offerings from FineGround Networks, Netscaler and Redline Networks.

PPS 4.0 costs $50,000 to start, and pricing for PPS Remote starts at $20,000.

ITWorx, with its NetCelera product line, is another company looking to optimize bandwidth. The company plans to add features to its data compression family the company says can further speed the delivery of data-intensive applications over WANs.

NetCelera, much like products from competitors Expand Networks and Peribit do, offers compression, bandwidth and TCP optimization tools.

The company in the next few weeks plans to add bandwidth management and quality-of-service features to its product suite. Those features will help customers guarantee that bandwidth not used for high-priority applications will be shared among other applications. The new features will control the maximum bandwidth used per application, essentially enforcing application service-level agreements.

The product suite also includes server software, NetCelera Enterprise Manager, which lets customers administer, configure and manage multiple appliances via a centralized console.

Pricing for the products range from $2,500 to $45,000, depending on the network. ■

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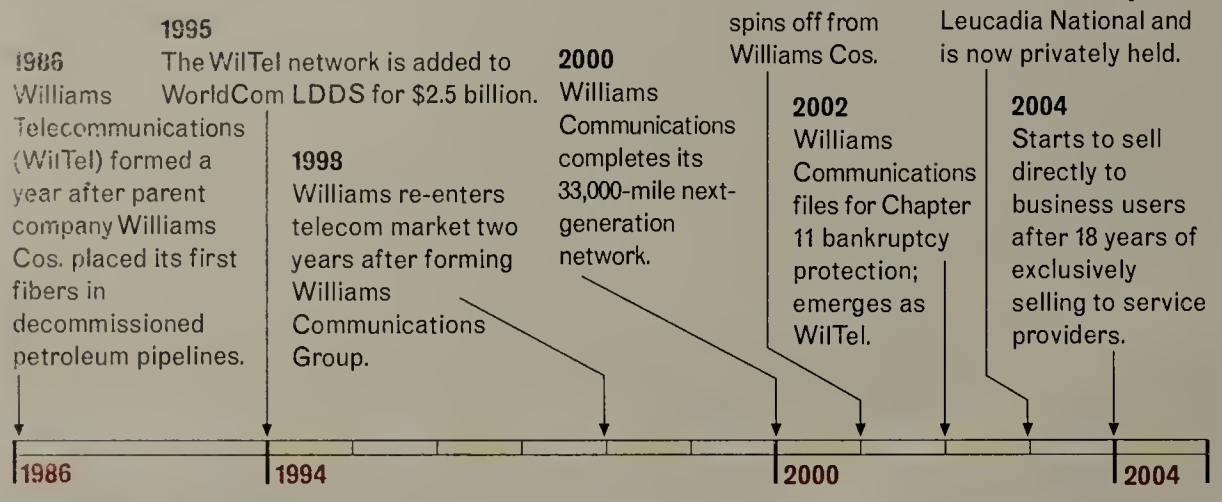
The many faces of WilTel

WilTel's plan to sell directly to corporate customers marks only the latest re-invention of the company.



WilTel

continued from page 9

customer's needs and the services WilTel will provide, he says. "With 50 to 75 [salespeople] to target enterprises, you'll be stretching yourself thin."

Another challenge for WilTel will be its financial reputation. The company joined many of its telecom industry brethren in Chapter 11 bankruptcy in 2002. The carrier, called Williams Communications when it entered Chapter 11 in April 2002, emerged in October as WilTel after restructuring nearly $6 billion in debt. WilTel, which emerged from bankruptcy with $375 million in debt, last year was acquired by Leucadia National and now keeps its financials to itself.

The fact that WilTel doesn't publicly disclose its financial results could work against it as the carrier goes after enterprise network business, says Lisa Pierce, an analyst at Forrester Research. "Users will have to sign non-disclosure agreements to see [WilTel's] information, but you're going to need a lawyer and an accountant to interpret the information," she says.

Among the initial WilTel offerings is a network-based MPLS IP VPN, which supports features such as traffic prioritization. The service provider has been delivering the same basic service to its carrier customers, for sale to their business customers, for two years.

Remote access to its network-based VPN service planned for later this year so that dial-up, DSL and cable modem users can securely access their corporate VPN. WilTel is also offering managed firewall and intrusion-detection services for its dedicated IP customers. Additional security services are planned by year-end.

Also being offered is a transparent LAN service that supports multiple access technologies (such as frame relay, Gigabit Ethernet and private line). The carrier did not reveal pricing, but says it will offer a choice of flat-rate or usage-based service rates.

WilTel also plans to announce at least two partnerships at N+I, Tomae says. The carrier is teaming with one company that will offer router management at customer sites and another that will focus on managed security support. WilTel would not name the partners. ■

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IBM preps desktop security service

■ BY ELLEN MESSMER AND JUAN CARLOS PEREZ

IBM Global Services last week rolled out a comprehensive desktop management service with a focus on security for small to midsize businesses that need help managing their desktop PCs and printers.

The new suite, called IBM Desktop Management Services, starts at $40 per seat, per month.

The services are delivered remotely by IBM via the Internet through servers loaded with desktop management software that IBM places at client sites.

The suite will enhance and reduce the cost of companies' desktop management, while freeing up IT staffers to do more sophisticated work, said Dale Moegling, manager of International Desktop Services at IBM Global Services, during a conference call with reporters. "This is intended to be complementary to the work of in-house IT folks."

The services eliminate the need to use desktop management tools, such as LANDesk's management suite or PowerQuest's DeployCenter, he said.

According to Moegling, the Desktop Management Services will keep any Microsoft Windows XP or 2000 desktop up to date on software patches and anti-virus signature updates, which would be provided by Symantec. If a virus outbreak has erupted on a customer's desktops, IBM says it will isolate the virus, clean up the hard drive and re-image it. Other desktop operating systems, such as those based on Linux, aren't supported, he said.

IBM also will have in place as part of the service a virtual help desk via a Web portal that will contain information on gaining support in a multi-vendor environment. In addition, IBM will provide an anti-spam and anti-virus gateway filtering service through third-party vendors the company declined to identify.

For the monthly charge, IBM delivers a suite of services that includes:

- The IBM servers, which are remotely managed by the company over the Internet and that have the necessary desktop management software.
- Automated backup of end users' desktop PCs, so that in the event of a hard-disk failure, the PCs can be reconstituted remotely by IBM without intervention from a client's IT staff.
- Updating of virus definitions, sometimes before the definitions become generally available, and virus scanning.
- Remote desktop monitoring, including automatic software distribution and updates.

"This suite of services is interesting because it is fairly comprehensive and addresses buckets of different areas that are of concern to SMBs," says John Madden, a Summit Strategies analyst. The suite shows that IBM effectively adapted services and methods it has provided to large companies and repackaged them for SMBs in a way that is affordable and simpler, he says.

IBM's initiative is another indication of the rising importance of SMBs for large IT services providers, which see a growth area in this market segment, Madden says. Other IBM IT services competitors focusing on SMBs include Electronic Data Systems, Dell and HP.

Perez is a correspondent with the IDG News Service's Latin America bureau.

Start-ups unveil security appliances

■ BY ELLEN MESSMER

Start-ups Crossbeam Systems and Imperva this week each will introduce security appliances aimed at protecting corporate resources from an assortment of threats.

Crossbeam unveiled the C10, a version of its multi-function security gateway appliance for small to midsize businesses (SMB). The C10 combines firewall, VPN, intrusion detection, anti-virus, Web filtering and content scanning of mobile code. It is expected to ship next month.

The box, which costs $10,000, supports six 10/100/1000M bit/sec copper ports or four 10/100/1000 copper ports and two gigabit fiber ports for network interfaces. It runs software from third-party security vendors Aladin, Check Point, Internet Security Systems, Trend Micro and Websense.

The box competes against multifunction appliances from NetScreen Technologies and Nokia, according to Troop Wilder, vice president of marketing at Crossbeam. Crossbeam's X-Series appliances are used primarily by ISPs and large organizations.

Imperva — whose CEO Schlomo Kramer founded Check Point — last week introduced an application-layer firewall appliance, the SecureSphere G400, designed to work both at the Internet gateway and inside the corporate network to block attacks against Web servers and Oracle or Microsoft SQL databases.

The 400M bit/sec appliance, which costs $30,000, monitors up to 1,000 HTTP requests per second.

Imperva competes with KaVaDo, Sanctum and Teros. Although application-layer firewalls can be hard to configure because of the variations in applications, SecureSphere G400 is designed to be deployed in 30 minutes after it "learns" customary site usage, Kramer says.

Ontario Teachers Pension Plan, a funds management company in Toronto, says deployment was fairly simple.

"We let it run in learning mode for a week where it learned about 65,000 uses of our Web site," says Greg Mooney, senior technical team leader. "We reviewed them to make sure it was normal."

Putting the G400 into blocking mode to stop attacks was then "a no-brainer," Mooney says. The main consideration was configuring the company's network to provide a sniffer port for the G400 to use. ■

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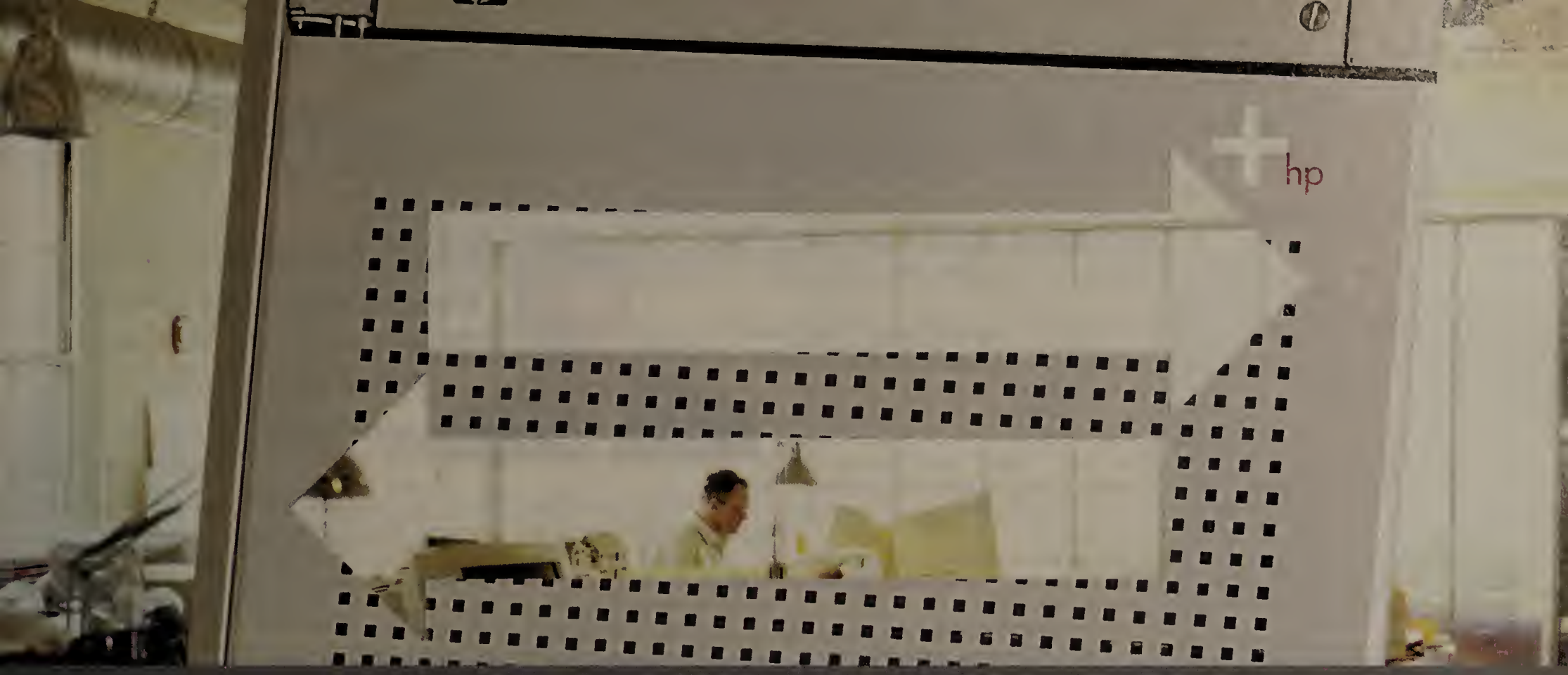

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Network Associates ditches Sniffer

BY DENISE DUBIE AND ELLEN MESSMER

Word from Network Associates last week that it is selling its Sniffer management tools business to narrow its focus on network security runs counter to an industry trend to tighten security and management integration, observers say.

The company also is going back to its roots by renaming itself McAfee, the moniker of the anti-virus software outfit that in 1997 merged with Sniffer creator Network General to form Network Associates. The move is part of Network Associates' broader effort to boost its operating profit margins to 25% by 2005, by focusing on high-growth security products.

"We're divesting Sniffer Technologies because it's the only remaining part of our business not related to security," Network Associates CEO George Samenuk said last week during a conference call with Wall Street analysts.

The money-losing Sniffer unit is being sold to two private-equity firms, Silver Lake Partners and Texas Pacific Group, for $275 million, with the deal expected to close by the third quarter. The two equity firms are expected to establish a new company called Network General.

The move was not completely unexpected: Network Associates last year dealt another management business, its Magic help desk division, to BMC Software for $47 million. Still, the announcement puzzled some industry watchers.

"There is no reason why [Network Associates] couldn't have integrated the Sniffer technology into its security products. And it would have been a smart move," says Pete Lindstrom, research director at Spire Security, an independent research firm.

In fact, a year ago Network Associates said it wanted to add intrusion-prevention features into Sniffer.

The move also comes in the wake of competitor Symantec announcing that it would add management features — for systems and storage — to its security products.

Meanwhile, management software leaders such as Computer Associates, IBM Tivoli and Microsoft are melding management and security technologies.

CA, for example, last year bought Raytheon's SilentRunner technology to add real-time traffic monitoring and protocol analysis to its eTrust security software.

"We're divesting Sniffer Technologies because it's the only remaining part of our business not related to security."

George Samenuk
CEO, Network Associates

As for Network Associates, while it is clear the company is focusing on security, its exact product direction within that market could be better defined, Lindstrom says. The company is strong in anti-virus software and has the potential to do well with intrusion-prevention products such as McAfee Entercept Management System, he says.

Network Associates last week reported preliminary first-quarter financial results, noting that its year-over-year McAfee revenue grew 11%.

Looking ahead, Samenuk said he expects McAfee will work closely with the new Network General because they will share a common customer base.

Sniffer customers say they were surprised by the announcement but are hopeful that the new Network General will do a better job of sales and technical support than Network Associates has done.

"The quality control in that product went way down after McAfee bought it," says William Griswold, network manager at Siemens Medical Systems in Malvern, Pa., which uses Distributed Sniffer to troubleshoot the firm's large Gigabit Ethernet LAN.

About 500 of Network Associates' roughly 3,300 employees are expected to join Network General. ■

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NAC

continued from page 9

struggling to define their own security architectures in the wake of mergers, acquisitions, joint ventures and other business dealings that require rapid and regular changes to network infrastructures. Meanwhile, viruses, worms and other attacks increasingly threaten corporate networks.

"Having a security architecture is a huge priority for us," says Bill Rocholl, first vice president for network technical services at Dutch banking conglomerate ABN AMRO. "We have a strategy and plan for security, but it's not as comprehensive as the one that's being developed here."

Rocholl says ABN AMRO has had a security strategy for two years and a corporate governance plan for four years. He plans to use the NAC Enterprise Security Architecture as an industry benchmark.

"We can validate, compare and do gap analysis to see if our strategies have any holes," Rocholl says. "This framework still needs to be developed, but hopefully it will be helping us solve problems that are three to five years out."

Rocholl says having a security architecture that is consistently applied is important for ABN AMRO. That's because the company grows through acquisitions and needs to merge networks quickly when acquisitions are approved.

"This document may influence our purchases of security devices and applications, especially if we can influence vendors to come out with the products we want," Rocholl adds.

The construction company Bechtel also expects NAC's Enterprise Security Architecture to affect its network security purchases. Bechtel's security budget has been growing at double-digit rates over the last four years, but it still accounts for less than 1% of this year's overall IT budget.

"Information security has become more important over the last four years," says Don Michniuk, corporate manager of information security at Bechtel. "Our senior management is interested in intellectual property leakage, e-mail impersonation and virus [protection]."

Michniuk says NAC's Enterprise Security Architecture will help Bechtel create consistent security capabilities across business units and help foster a common language for IT executives to use when talking about cybersecurity with upper management.

Following last week's discussions, NAC plans to make significant changes to the draft document before its release. Currently, the document is divided into three sections.

The governance section defines eight security principles, including simplicity and resilience. It lists questions to ask when creating security policies and provides a template that addresses services such as encryption, authorization and authentication.

The technology architecture section provides a three-layer security model. The resource layer includes workstations, servers, applications, databases and data. The perimeter layer includes security products such as firewalls that enforce boundaries between corporate networks and the Internet. The access layer includes proxy servers that enforce identity-related access to network resources.

The operational architecture section considers issues such as design and development, deployment, monitoring, change management, vulnerability management and ongoing assessment.

"What we're looking for is some kind of framework that helps us solve the problem of how to make security products interoperate with each other," Wettling says.

NAC has significant clout among network vendors. NAC companies represent combined revenues of more than $750 billion, more than 50,000 network servers and 1 million workstations. Founded in 1990, NAC's support has helped advance key industry standards such as the Lightweight Directory Access Protocol.

"This document will have real market impact without a doubt," says Tony Rock, vice president of client services at Archer Technologies, which sells enterprise security management software to Lehman Brothers, Citigroup, Credit Suisse First Boston and many other financial services firms. "It will be interesting to see where this effort is at a year from now."

NAC's Enterprise Security Architecture will be available to non-members of the NAC, including corporate users and vendors, via written request. For more about NAC, visit www.net apps.org. ■

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Protection plan

The Network Applications Consortium's Enterprise Security Architecture at a glance:

Expected publication:	August
Authors:	Include network executives from Agilent, Bechtel, Boeing, Cardinal Health, Chevron Texaco, GlaxoSmithKline, Johnson Controls, State Farm Insurance and Walt Disney
Length:	Current draft is 59 pages.
Description:	The draft document outlines an overall framework that a company can use to ensure the confidentiality of information, integrity of data and the availability of IT resources. It is written for a high-level audience, including network, IT and C-level executives.

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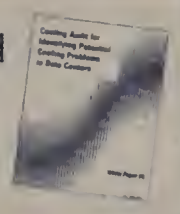

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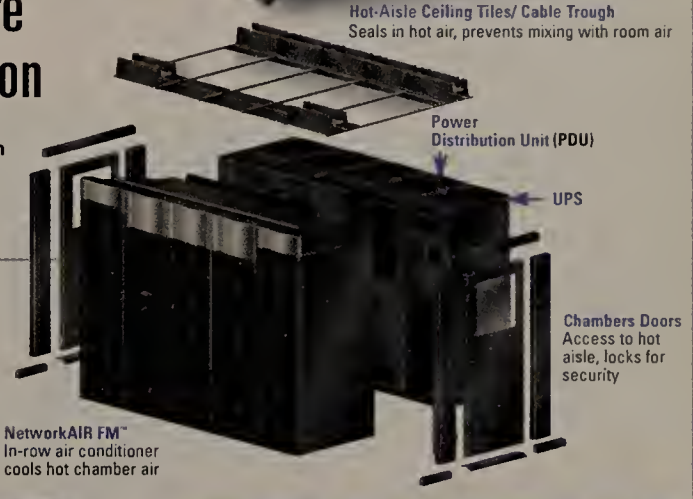

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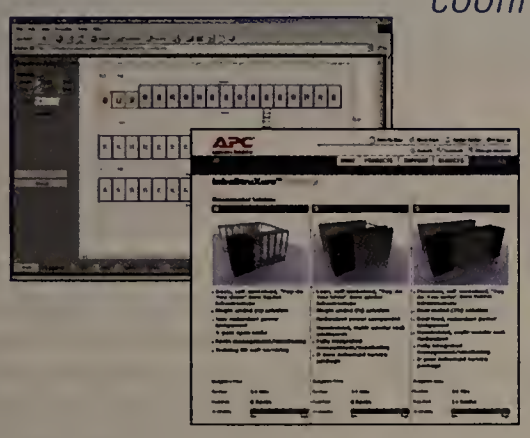

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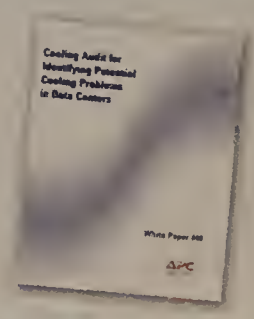

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Web services security spec approved

■ BY JOHN FONTANA

The specification that will serve as the foundation for building security into Web services was officially ratified as a standard last week, paving the way for widespread corporate adoption.

The full membership of the Organization for the Advancement of Structured Information Standards (OASIS) gave final approval to Web Services Security: Simple Object Access Protocol (SOAP) Message Security 1.0 was approved just less than two years after Microsoft, IBM and VeriSign jointly submitted it.

Included in the ratification were two authentication profiles that work under WS-Security, the Username Token Profile 1.0 and the X.509 Token Profile 1.0. Additional authentication profiles are under development within the OASIS Web Services Security Technical Committee, including profiles for Kerberos, the Security Assertion Markup Language and mobile devices.

In its most basic form, WS-Security lets Web services pass secure and signed messages. Security information is exchanged using extensions added to the headers of those messages, which are based on SOAP.

"WS-Security is essential for securing a Web services environment," says James Kobielus, an analyst with Burton Group. "It is central to the core of standards everyone is implementing, including XML, SOAP, [Web Services Definition Language]. Its ratification is no surprise to anyone, given the impressive amount of existing support and implementation."

Major vendors that already support WS-Security include BEA Systems, Computer Associates, HP, IBM, Microsoft, Novell, SAP and Sun.

The WS-Security specification also might help foster a single federated identity standard. Efforts from the Liberty Alliance and a group led by Microsoft and IBM have incorporated WS-Security into their federated identity specifications.

"Approval as an OASIS standard adds a level of acceptance for adoption in the marketplace," says Patrick Gannon, CEO of OASIS. "We've seen a reluctance by end users to invest in moving targets. They want stability so they can reap ROI. Ratification is an important step to allow companies and governments to reference this standard specification in their projects."

Building blocks

The Web Services Security specification (WS-Security) is the foundation for a set of protocols designed as building blocks for creating security around Web services applications. While none has been submitted to a standards body, IBM and Microsoft have said they will be made available royalty-free.

Protocol	Description	Status
WS-Policy	Defines how to express the capabilities and constraints of security policies.	Under IBM, Microsoft control
WS-Trust	Describes model for establishing direct and brokered trust relationships.	Under IBM, Microsoft control
WS-Privacy	Defines how Web services state and implement privacy practices.	Not published
WS-Secure Conversation	Describes how to manage and authenticate message exchanges between parties, including establishing and deriving session keys.	Under IBM, Microsoft control
WS-Federation	Describes how to manage and broker trust relationships in a heterogeneous federated environment.	Under IBM, Microsoft control
WS-Authorization	Defines how Web services manage authorization data and policies.	Not published

WS-Security, however, is not the end of the line. The specification is seen as the linchpin to create simple message security all the way up to federated security that cuts across corporate boundaries.

Microsoft, IBM and various partners still are working on companion specifications that rely on WS-Security as a foundation for other security services for Web services (see graphic). All are in development, but none has been approved as a standard.

WS-Security is only one piece of the Web services standards puzzle. A handful of other specifications are under development by OASIS, the World Wide Web Consortium and groups of independent vendors, including specifications for reliable messaging, process workflow, choreography and management. Experts say the group of standards is needed to convince corporate users that they can use Web services to build Web-based distributed applications. ■

Everdream fills gaps in Microsoft's free patch tools

■ BY JOHN FONTANA

Management service provider Everdream this week will introduce a patch management tool designed to erase the shortcomings of the automated patch service Microsoft offers.

Everdream's PatchControl is a Web-based hosted application that adds a layer of management on top of Microsoft's Software Update Services (SUS) 1.0, a free service that lets corporate customers download patches to a server behind their firewalls for testing and subsequent deployment.

End users have noted many shortcomings with SUS, such as the inability to report on what patches already are installed on a machine and if patches are installed properly. Microsoft has announced Windows Update Services (WUS) 2.0, which replaces SUS and adds some reporting features, but the ship date has slipped into the second half of this year.

"The reporting details are the big benefit of Everdream," says Marc Paley, manager of global IT services for Salesforce.com in San Francisco. He manages 30 servers and 500 desktops. "If something failed halfway through installation, PatchControl tells us why." And Paley says his remote users can get the latest patches without having to connect to the corporate network.

PatchControl works through an agent installed on desktop PCs or servers running the Windows operating system. The agent collects a system inventory and aids in software distribution. The tool is an introductory version of Everdream's Patch Management service.

PatchControl doesn't replace Microsoft's SUS. Instead it relies on SUS as the mechanism to automatically download new patches from Microsoft. However, Everdream can host the SUS server, or it can be deployed within a company's network.

The PatchControl interface provides a mechanism for setting policies such as when patches are installed. Everdream tests the patches before offering them for deployment, but end users can request expedited installation of critical patches. PatchControl's Remote Deployment Kit lets users deploy patches to individual machines, to a range of IP addresses or by subnets. A logging feature provides access to patch data such as successful installations and failures.

PatchControl doesn't solve the problem of patching other Microsoft software such as Exchange and SQL Server. Everdream says users can contract for additional services to include those systems. The ability to patch systems beyond the Windows operating system is one of the major upgrades coming in Microsoft's WUS 2.0.

Patching and security is a major sore spot for Microsoft customers. While Microsoft scrambles to fix the problems, Everdream is but one of many vendors, including BigFix, Shavlik Technologies, St. Bernard Software and PatchLink, which offer a life line to corporate users.

"What we have is a layer of management tools that complement what Microsoft is offering for free," says Lyndon Rive, founder of Everdream.

PatchControl costs $1 per user, per year. Everdream offers additional services that can be integrated, including license inventory, asset management and help desk tools. ■

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Accelerating and Securing Web-Delivered Applications

Case Study #1

ShopNBC

Vertical industry: E-commerce

Problem: Providing good performance for a customer base dominated by dial-up users.

Solution: NetScaler 9800 Secure Application Switch to compress SSL and non-SSL traffic.

Result: 33% improvement in homepage download time over dial-up lines, from 24-25 seconds to 15-16 seconds. Average page download time reduced one-third to one-half. *Improved shopping experience leads to more revenue.*

Cost savings: Postponed purchase of new servers for 18 months; approximately $26,000 per year in reduced SSL and Web log analyzer licensing fees; lower administration costs.

ShopNBC, an upscale TV and Internet retailer, sells products affiliated with the NBC television network as well as an array of general merchandise, from computers and jewelry to health and fitness. The compression and SSL acceleration capabilities in the NetScaler 9800 gave ShopNBC an immediate, noticeable performance boost. "NetScaler's products surpassed the alternatives in delivering the performance that our customers demand," says Steve Craig, vice president and CTO at ShopNBC. Even with the Summer Olympics coming up, Craig is confident he won't have to buy more servers to keep up with demand.

NetScaler brings performance, security and reliability to Web-delivered applications with a single, integrated solution.

As companies continue to turn to the Web to deliver business-critical applications, they learn more and more about its limitations. Applications can perform poorly, especially under heavy load or when accessed via low-quality connections. Providing proper security is a seemingly never-ending battle, whether the goal is to protect personnel records and customer transaction data or simply to maintain application availability in the face of a denial-of-service (DoS) attack. You've also got to ensure you provide appropriate virtual private network (VPN) access to critical applications for an ever broader range of employees, partners and end customers — without breaking the bank.

Any one of these issues could threaten the overall return on investment (ROI) on your Web application infrastructure, whether it's used for internal applications, an extranet that ties in business partners or a public Web site. Taken together, the various threats represent a potentially devastating risk to your ability to achieve business goals.

You do have options for addressing these issues—perhaps too many options. Indeed, many separate appliances each purport to address a portion of the problem, including load balancers, Layer 7 or "application switches," compression appliances, Web caches, Secure Sockets Layer (SSL) accelerators, DoS protection systems and VPN gateways. The problem is, cobbling together numerous point products increases complexity and interoperability risks, while raising capital and operating expenses.

"We've spoken with many people at enterprises that operate internal or external applications," says Peter Sevcik, president of NetForecast, a consulting firm that specializes in analyzing and improving application performance. "The issues they're facing today are consistent: How do I roll out a growing portfolio of Web-based applications while controlling performance, hitting cost targets, and maintaining data center security?"

Focused on application delivery

NetScaler, based in San Jose, Calif., has a solution for the problems Sevcik describes. The company developed its 9000 Series of application delivery systems to be the next generation of traffic management devices. The devices specifically address the problems associated with securely delivering complex enterprise and e-commerce applications over an often unpredictable Internet. Whether the application involves enterprise employees accessing a customer relationship management program or an online buyer booking the latest concert ticket, NetScaler's 9000 Series can be a critical success factor in ensuring applications meet performance and security goals.

"The issues they're facing today are consistent: How do I roll out Web-based applications while controlling performance, hitting cost targets, and maintaining data center security?"

Peter Sevcik, *NetForecast*

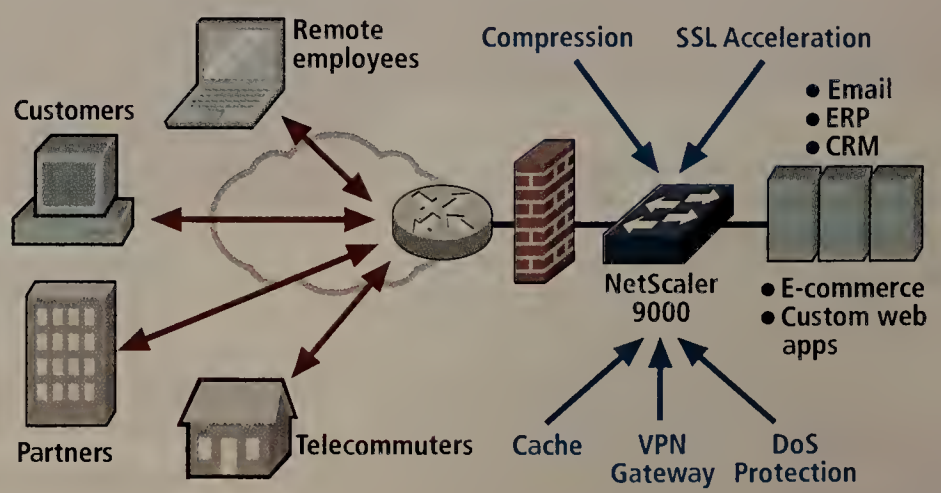
Hundreds of leading companies already depend on the NetScaler 9000 Series, including ShopNBC, an upscale TV and Internet retailer. ShopNBC significantly boosted performance for its dial-up users and delayed hardware upgrades for at least 18 months. Another major retailer, Pacific Sunwear, which has some 880 brick and mortar stores and a growing Web presence, is using NetScaler's suite of integrated technologies to improve performance and avoid thousands of dollars in bandwidth upgrades (see stories, this and facing page).

Achieving stellar performance

NetScaler enterprise customers report reductions in response time of 50% or more for applications ranging from Web-based e-mail to CRM, human resources and

NetScaler puts it all together

NetScaler application delivery systems combine numerous functions traditionally provided by separate appliances, enabling you to cost-effectively boost the performance, availability and security of your applications.



financial applications (see chart, this page). That translates into less time waiting for pages to load and, ultimately, increased employee productivity.

The results are similar for e-commerce and public content sites. Using the 9000 Series' integrated compression and TCP processing capabilities, ShopNBC was able to reduce download times for its home-page by 33% and all other pages by one-third to one-half, says Steve Craig, vice president and CTO at ShopNBC.

"Before deploying NetScaler systems, we were faced with the challenge of delivering complex applications to a broad base of users, many of whom are still on dial-up," Craig says. "NetScaler enabled us to improve performance while minimizing server and overall data center investments."

Not just faster, but more secure

At the same time that NetScaler 9000 devices improve performance for end users, they also increase application security as a whole. NetScaler offers a range of attack protection capabilities, including application-level intrusion filtering to block worms and viruses such as Code Red and NIMDA. The devices also defend against various types of DoS attacks, such as SYN floods and the recent MyDoom set of attacks.

"NetScaler enabled us to improve performance while minimizing server and overall data center investments."

Steve Craig, ***ShopNBC***

"NetScaler is used as a primary or secondary firewall by several customers," Sevcik says. After conversations with several NetScaler enterprise and public Web site customers, he says, "It became clear that they had a need for packet filtering and attack protection, and appreciated the fact that it was solved as part of an integrated device."

The security provided by NetScaler extends to remote users who access the network via VPNs. The NetScaler 9000 family supports SSL-based VPNs, which enable remote users of all types to securely access applications using only a Web browser. SSL VPNs can be configured to provide granular access to specific applications and directories — thus protecting the rest of your enterprise network — without the expense and ongoing complexity of managing dedicated client software.

Tallying cost savings

While NetScaler uses all of these techniques to thwart illegitimate traffic, it also ensures that all legitimate requests get through, improving overall availability. Rather than drop connections, as an overwhelmed Web server might during peak periods, NetScaler queues them up for efficient handling. Visitors never see the dreaded "server not available" message.

That was an important consideration for ShopNBC because the site is subject to unpredictable traffic spikes, Craig says. NetScaler enables Craig to take such spikes in stride, rather than adding horsepower that will go unused except at peak times. Indeed, he figures he won't need to add servers for about 18 months, while other NetScaler customers report reductions of 75% to 80% in the number of servers they require. Several NetScaler customers report savings of more than $1 million by eliminating the need to purchase additional servers to handle increasing loads.

You can also expect large savings from reduced bandwidth requirements. In many instances, the compression feature alone will save customers $20,000 per month in bandwidth costs, enabling the device to pay for itself in a matter of months.

While these are all hard cost savings, the improved performance, availability and security provided by the NetScaler 9000 also bring considerable "soft" cost benefits. Consider the savings in productivity when screens from important internal Web-based applications paint 50% more quickly.

Consider, too, the IT productivity savings from having a single device provide functions once performed by many discrete appliances. When that same device is able to defend against security threats, including DoS and worm attacks that threaten availability, you can see how quickly the ROI adds up.

Most any company that's relying on the Web to deliver critical applications could benefit from the type of performance, availability and security boost that NetScaler provides, Sevcik says. "Any company that's doing supply chain management, reaching out to business partners or using some customer relationship software to address many users outside their own company — all of those could benefit."

Real customers, impressive results

NetScaler delivers significant Web application response time improvement.

Application	Response Time Improvement (%)
PeopleSoft	62%
Outlook Web Access	58%
Lotus iNotes	55%
e-Commerce (ShopNBC custom)	33%
Custom portal (online job search)	60%

SOURCE: NetScaler customers

Case Study #2

Pacific Sunwear

Vertical industry: Retail

Problem: Frequently dropped transactions during checkout.

Solution: NetScaler 9800 Secure Application Switch to compress data and a new network design that incorporated load balancing between two Internet T3 access links.

Result: A 50% reduction in bandwidth utilization and *"a significantly improved customer experience, ultimately leading to an increase in sales."*

Cost savings: Avoided $30,000 investment in dedicated load balancer and "many thousands of dollars" in bandwidth upgrades and additional capital equipment. ROI achieved in two months.

Pacific Sunwear operates some 880 brick and mortar stores, selling more than 30 popular surf and skate brands including Billabong, Dickies, Quicksilver and Fossil.

Although Pacific Sunwear is connected to the Internet by two 10M bps circuits, customers were experiencing dropped transactions in the middle of the electronic checkout line during high volume periods. The company's IS department addressed this problem by installing NetScaler's 9800 Secure Application Switch. The NetScaler system's compression capability immediately reduced bandwidth requirements by 50%, with no need for customers to download any special software. After the NetScaler 9000 Series systems were deployed, the congestion that was at the root of the checkout problem was gone.

"There's no downside whatsoever to the NetScaler installation – it's been a win-win situation across the board," says Dwayne Russell, director of technical services for Pacific Sunwear. "Our customers are extremely happy because they have fast, reliable connections to the site. IT management is happy because we are maximizing the utilization of our existing network resources, and our e-commerce call center team is ecstatic because the dropped transactions have stopped entirely. Marketing and merchandising are delighted because we've seen marked improvements in sales. And our finance team is pleased because we improved our site's performance at half the projected cost."

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Q A Group makes hardware security Job 1

*The Trusted Computing Group is a collection of 55 vendors including HP, Intel and Microsoft that formed a year ago to develop specifications for chip-based security. **Nancy Sumrall,** marketing chair for the group and manager of the safer computing initiative within Intel's desktop platforms group, recently gave* Network World *Senior Editor Ellen Messmer an update on the TCG.*

What was the impetus for forming the Trusted Computing Group?

Prior to April of last year, the group had loosely gotten together. Intel, Microsoft, HP and IBM started working on a specification for a trusted platform module [TPM]. As more companies wanted to be involved, we incorporated as a nonprofit, industry standards body worldwide.

What is a TPM?

It's a chip on the motherboard, a microcontroller that allows you to have secure operations for encrypted e-mail, digital signatures, file and folder encryption, platform authentication and storage. It stores the private keys for the encryption. The TPM is a discrete component, and it's manufactured by Atmel, National Semiconductor, Infineon and, most recently, Renaissance.

What's TPM's status?

The first specification was adopted from the work of the loosely held organization. It's TPM 1.1b, a revision to earlier work out since September 2001. The TPM 1.2 spec released last November fixed some of the problems in 1.1b and added new features. Among new features, there was one added for what's called "direct anonymous attestation."

What is direct anonymous attestation?

It's a way of internally — through mathematical calculations — being able to provide certificates and credentials. Certificate usage hasn't really taken off in the industry due to the cost, so this is an alternative way to do it. An IT department can 'trust' without the use of a trusted third party. It was developed by Intel and HP.

Are the Microsoft crypto APIs used with the TPM?

The TPM can utilize Microsoft [CryptoAPI] or PKCS #11 or the TCG software stack, a standard you can write to as well. Many software application vendors, such as Wave Systems, are using that.

What's the significance of supporting trusted computing technology in hardware?

Software alone may not be the proper solution for security or preventing viruses or attacks.... The TPM is soldered down to the motherboard so if anyone tries to pry that off everything gets erased. You can't pry that TPM off and put it on another platform and know someone else's key.

Does the TPM use specific key lengths?

It's 2,048-bit based on Advanced Encryption Standard and SHA-1. IBM has its ThinkPad series, RXT, where TPM is an option on the motherboard. It's also an opt-in device, which means you have to turn it on. HP has also come out with a desktop that includes TPM. Fujitsu just announced its Lifebook, and Intel has a motherboard we sell with the TPM. So right now the current applications are the desktop and mobile. You can do encrypted e-mail and send it to someone who also may have TPM and they can decrypt that.

What constitutes conformance to the specs?

There's functionality testing for 1.1 and 1.2, which is easy, and TCG has also worked on a set of protection profiles which are published. When manufacturers make a PC, they know they have to conform to these profiles. We have a conformance workgroup and test labs, and we're working on these issues. You can buy 1.1 products and use them until the 1.2s are available. It's backward-compatible.

What role, if any, does Microsoft play here?

At TCG, we write building blocks. With my Intel hat on, we have a product that we talk about in our latest Intel Developer Forum called LaGrand that utilizes the TPM. It allows you to do protected execution in a secure spot on the processor. Microsoft has its secure operating system. So you'll have the secure TPM, software that's written by application vendors that adhere to the TCG software stack or CAPI or PKCS #11. Microsoft has its own initiative, Next-Generation Secure Computing Base. All of this will work together.

What's next for the group?

All the TPM vendors are working on their prototypes now. Atmel said its TPM 1.2 hardware would be available in the April timeframe. We've been talking about things that are PC-centric, but we have many new workgroups: storage, server, peripherals and mobile devices. We're looking at putting TPM in cell phones. We also have our infrastructure workgroup looking at different usage cases, such as VoIP. ■

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Server clusters offer speed, savings

■ BY JENNIFER MEARS

When retail services firm Datavantage acquired the code last year to roll out its gift-card offering that would provide retailers a transaction platform to store and manage retail credits, it knew its back-end system couldn't stand any downtime. It also knew it didn't want to shell out loads of money to keep the system running on the expensive Unix infrastructure on which it was built.

So the Cleveland firm scrapped the legacy platform, a Sun E450 running Oracle. Instead, Ian Amit, development manager at Datavantage, deployed a cluster of Intel-based HP ProLiant servers running Linux and Oracle's 9i Real Application Cluster database.

Increasingly, companies are looking at ways to cluster smaller, low-end servers to achieve performance and reliability that is equal to or better than expensive, high-end boxes. Clustering servers is nothing new. For years, mainframes have been strung together in what are called Parallel Sysplex Clusters to let workloads be shared across all available resources. Unix systems also provide clustering capabilities with vendors providing proprietary software, such as Sun's Sun Cluster and IBM's high-availability cluster multiprocessing technology.

But the improved performance and reliability of low-end servers has IT managers looking at clustering in a new light, analysts say. Systems vendors and software makers are pushing the trend. For example, last year Dell and Oracle unveiled efforts to push clusters of low-cost, standards-based systems to provide business customers with processing power previously only available on expensive, high-end machines. Finding applications that can run in such distributed environments is one hurdle, but software vendors are beginning to introduce offerings. Oracle's 9i RAC, for example, was designed specifically to run on clustered servers. Analysts say business customers can expect more applications to follow.

Part of the reason for the shift is that IT managers, forced to do more with less in recent years, have begun buying more low-end servers, which at the same time have become more powerful, analysts say. While server revenue has dragged in the midrange and high end during the past

See Clusters, page 31

Short Takes

■ **Sandial** this week will introduce new software for its **Shadow 14000 Storage Backbone Switch** that monitors the performance of the storage-area network, analyzes congestion and hot spots, and lets IT administrators take action to prevent them in the future. Sandial also will expand its software for the Shadow 14000 to include policy configuration, service-level agreement administration, and accounting and billing modules. The ShadowWorks Network Performance Modeler costs about $15,000.

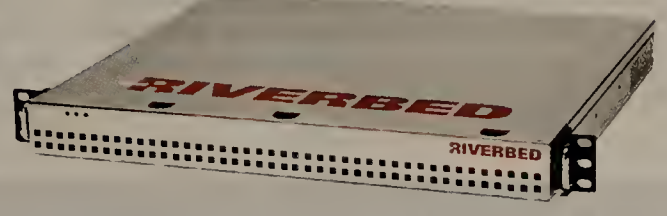
■ **PowerDsine** last week announced a new chip that will let Ethernet switch designers integrate Power over Ethernet more easily into their gear. The **PD67000 PoE** dual in-line memory module will be marketed to LAN switch makers and could result in lower-cost PoE gear from vendors. The chips support 24- and 48-port PoE switch configurations. Users could expect to see products based on the technology in the second half of this year.

■ **Apple** last week announced a **SAN file system** that gives customers more scalable access to data. Xsan, a clustered file system, works with Apple's Xserver and its Xserve RAID subsystem. Xsan lets users share volumes and files up to 64T bytes in size. The 64-bit Xsan software costs $999 and is expected to be available this fall. It is in beta now.

Riverbed helps speed WAN traffic

■ BY TIM GREENE

Riverbed Technology is launching its first product, an appliance that squeezes more traffic onto WAN links and also reduces the potentially crippling delay that certain chatty protocols can cause when sent across congested wide-area connections.



Riverbed says its Steelhead appliances can reduce WAN delays by 100 times.

With the company's Steelhead appliances, customers can speed up specific applications so end users don't get frustrated with performance and swamp help desks with calls. Performance for some protocols can be as much as 100 times better using Steelhead boxes, Riverbed says.

The products compete with gear made by Expand, ITWorx, Packeteer and Peribit, but use unique variations on how to make narrow pipes work faster, says Peter Firstbrook, senior research analyst for Meta Group.

Devices made by all these companies sit at either end of WAN connections and use different types of caching and compression to reduce the amount of traffic that has to cross the links, he says. But these methods don't make chatty protocols any less chatty; they still conduct thousands of interactions, each of which takes more time over the WAN than it would on a relatively faster LAN, Riverbed says.

By spoofing some of these interactions on the local Steelhead box, they can be made more efficiently and thereby reduce the time to make a remote transaction with a server. For instance, if a remote user tries to open a Microsoft Word file on a remote server, the Steelhead appliances recognize the initial steps of the transaction and generate appropriate responses to the server and the client. When the transaction is complete, the Steelhead devices compress the sought file and send it. Riverbed calls this process "transaction prediction."

Merrill Lynch is looking to use Riverbed boxes to support its move to centralize servers rather than to support individual print and application servers in many branch offices, says Dave Cohen, a vice president at Merrill Lynch. Moving servers to central sites reduces the amount of maintenance and support that branch offices need and frees up servers for other purposes, he says.

"It's compelling to centralize all that equipment," he says.

Many of the applications use Microsoft's Common Internet File System (CIFS), a chatty method that would mean unacceptable delay over the WAN.

"This is an end-user experience hurdle you have to get over. If they notice too large a time lag to store a file, they will be unwilling to use the solution," Cohen says.

Merrill Lynch's lab tests of Steelhead devices showed they meet Riverbed's claims to reduce delay by 100 times, Cohen says, which means delay will be acceptable.

Initially, the Riverbed appliances will perform transaction prediction with CIFS and messaging API traffic only, but eventually will expand to other traffic types, the company says.

Steelhead devices also store traffic on hard disks so their software can perform historic searches for patterns of data that cross the network repetitively. When these patterns are discovered, the Steelhead can represent these patterns using fewer bytes and send the representation across the WAN connection. It is deciphered at the other end by the Steelhead device with which it is paired.

The disk lets the devices store more data and therefore find more repetitive patterns than devices without disks, Firstbrook says. It also lets them search for longer patterns, he says.

Steelhead appliances come in five models, 500, 1000, 2000, 3000 and 5000 They range in price from $6,000 to $40,000.

Riverbed, which was named for its founders' love of freshwater fishing, is funded by $16.6 million from Accel Partners, UV Partners and Lightspeed Venture Partners. Founders Jerry Kennelly, CEO, and Steve McCanne, CTO, both worked previously as executive vice president and CTO, respectively, of Inktomi. ■

Shoreline becomes ShoreTel, pumps up VoIP

■ BY PHIL HOCHMUTH

As Shoreline Communications launches a new line of VoIP equipment to support larger numbers of users and more functional features aimed at midsize to large companies, the IP PBX maker is renaming itself ShoreTel this week.

ShoreTel is introducing a new version of its distributed IP PBX software and hardware, doubling the number of users that can be supported to 10,000. ShoreTel also is introducing a new line of phones, ranging from basic to advanced models. It says the upgrades are aimed at helping companies quickly deploy IP telephony with failover capabilities and converged applications such as presence and multimedia conferencing.

Founded in 1998, privately held ShoreTel is owned jointly by investors Lehman Brothers, JP Morgan and Crosspoint Venture Partners. The company says it has about 1,000 customers and experienced positive growth over the past two years. However, the firm has not been able to gain more than 1% of the total IP PBX market.

Also, some analysts have said that ShoreTel's original computer-telephony-based interface technology was clunky because it combined analog phones with call control features handled from a PC client. The company has since moved to an IP-phone-based endstation model.

ShoreTel's distributed architecture for IP telephony involves stackable IP PBXs deployed in tandem with Ethernet workgroup switches. The firm's ShoreGear switches, based on Media Gateway Control Protocol, provide call control to attached IP phone users and interoperate with other ShoreGear boxes across LANs and WANs. All system users are managed under one administration domain, via ShoreTel software, running on a management server. The ShoreGear boxes support analog phones.

The new ShoreTel5 IP PBX management platform supports up to 10,000 users under a single virtual system, with phones distributed across multiple 120-port ShoreGear devices. ShoreTel5 also includes IP phone failover capability, by which IP phones attached to a local ShoreGear box can continue to operate if the ShoreGear device fails.

The ShoreTel5 system also supports an ad hoc conference and collaboration application. This lets users with PC client software drag and drop names from a directory to easily set up conference calls. Document files also can be dragged into the client software, allowing conference members to view and edit Microsoft Word and Excel files, and view PDFs and Web documents.

ShoreTel5 includes standard business phone features, along with advanced convergence applications and features, such as directory and presence applications, which let users see if other users are available or out of the office, via an IP phone LCD screen.

ShoreTel also has added a branch-office box, the ShoreGear-60/12, which can support up to 60 IP phone users, and includes WAN interfaces for public switched telephone network and VoIP network connections.

Three new IP phones also are being introduced. The IP 210 is an entry-level, single-line phone. The IP 530 and IP 560 offer three and six lines, respectively, and include built-in Ethernet switches for connecting PCs to the LAN through the IP phone. (This lets both devices work off of one network drop). All the IP phones support 802.3af power over Ethernet, which lets the devices receive power from compatible Ethernet switches.

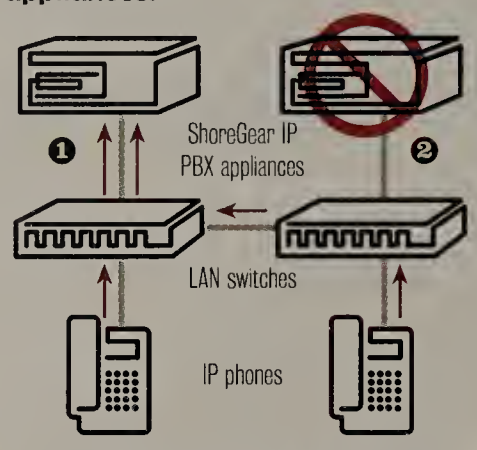
On the product front, Elizabeth Herrell, an analyst with Forrester Research, says the ShoreTel equipment offers a good alternative to the big-name VoIP players — 3Com, Alcatel, Avaya, Cisco, Nortel and Siemens. ShoreTel also competes with smaller IP PBX vendors such as Altigen, Pingtel and Vertical Networks.

"Their stuff is easy to deploy and manage, and doesn't have a single point of failure" because of its distributed model, she says. "They've built a small but loyal following with these products."

The ShoreGear-60/12 will be available in May for $3,000. The IP 210 will cost $230, and the IP 530 and IP 560 will cost $330 and $430, respectively. ■

Distribute and survive

ShoreTel now supports IP phone failover among its distributed IP PBX appliances.



1 ShoreGear switches are distributed among workgroups, attaching LAN switches and providing dial tone and call control for a group of phones.

2 If a ShoreGear switch fails, traffic from one group can be shifted to a nearby box.

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Clusters

continued from page 29

few years, server sales on the low-end (servers priced less than $25,000) continued to grow throughout the downturn, according to IDC.

"IT managers got so accustomed to buying the volume servers during the downturn, I think that has kind of predisposed them to say, 'Gee, let me see how I can use this type of computing going forward,'" says Jean Bozman, vice president of global enterprise server solutions at IDC.

For Amit, the cluster of low-end Linux servers has resulted in a substantial cost savings and improved performance. Whereas the Sun infrastructure cost about $1 million, Amit set up a new infrastructure that includes the cluster of two two-processor ProLiant DL580 servers running Oracle for about $250,000.

"We didn't like the old platform. It had down time that exceeded the [service-level agreement] that we were supposed to provide customers. We had problems managing the Oracle instance, and the data itself was becoming a nightmare because you literally cannot take the system down. For every little hiccup that the system had, that was downtime," he says.

With the cluster and Oracle 9i RAC, servers work together to pick up the load so downtime becomes insignificant, Amit says. If one server goes down or becomes overloaded, the other server automatically picks up the slack. And with the cluster configuration, Amit easily can expand capacity, an important consideration with the company expecting its gift-card application to double its workload in the next year or two.

"I can expand horizontally and vertically. I can add more horsepower to the current servers, and I can add more servers to the configuration," he says. "The whole design had to keep everything completely open to expansion without incurring a single second of downtime. Anything you wanted to do in terms of expanding the old setup was downtime and cost."

Bozman says an IDC study of 325 IT managers running clusters last year found that about 80% of Windows and Unix clusters are being deployed in high-availability configurations. However, the move toward running workload balancing clusters, such as the one Amit deployed, is increasing, especially in the Linux world, where about 80% of those clusters are focused on resource sharing, she says.

GlobeXplorer, which provides satellite images and aerial photography via the Internet, made its first foray with Linux when it rolled out a cluster of more than 40 Dell servers running Red Hat Linux earlier this year. The servers help GlobeXplorer deliver and manage images that must be located and decompressed.

Rob Shanks, CEO of the Walnut Creek, Calif., company, says GlobeXplorer handles more than a million images per day, so processing power and reliability is invaluable. Without the cluster, the company would have had to spend millions of dollars to deploy bigger iron, he says.

"The alternative would have been something beyond Sun Fires, which are multi-, multi-million dollar machines [for example, a high-end Sun Fire E25K starts at about $1 million for a four-processor configuration]," he says. "But since we built the software from the ground up, we built it around this clustered technology."

Porting software to the clustered environment is a challenge for companies looking to deploy clusters. Jim Knight, manager for infrastructure services at outdoor clothing and gear retailer Recreational Equipment Inc. (REI) in Kent, Wash., says that was the biggest hurdle in deploying an Oracle 9i RAC cluster on IBM Unix servers two years ago.

REI had been running an Oracle database on one Unix server with hot backup, but realized it wasn't getting the reliability it needed — and was paying too much to have idle hardware standing by — as it watched sales on its online retail site jump from about $25,000 per hour to as much as $95,000 per hour during peak seasons.

With the Oracle 9i RAC cluster, REI avoids downtime, but it took time to get its application developers used to the idea of writing code for a distributed environment, Knight says.

"Our code was originally designed against a single database server with a hot backup, so everybody coded to a specific server," he says. "With RAC you don't need to do that. You code to a database and you let the servers talk to each other. So the challenge that we had was re-educating our developers. Running a database across multiple boxes at that time was unheard of."

Another challenge in deploying clusters can be architecting storage and back-up systems to ensure data is shared across multiple servers.

"With Microsoft clusters, the backups we've run have proven to be not really an obstacle, but more of a challenge to get the back-up system to work with the cluster — to recognize when a failover has taken place in the cluster and move over," says Jim Hammelef, a senior systems programmer at Oakwood Healthcare in Dearborn, Mich. ■

Cluster time

Corporations are considering clusters of low-end servers to get the power and reliability typically associated with bigger boxes. Three hundred and twenty-five IT managers surveyed by IDC last year listed benefits and challenges inherent in cluster deployments:

Reasons for clustering:

- Improved availability
- Reliability/dependability
- Improved scalability
- Improved workload management

Challenges in implementing clusters:

- Lack of understanding
- Getting it operational
- Configurations

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TOLLY ON TECHNOLOGY

Kevin Tolly

Enterprise WLANs: The kinder, gentler shakeout

As wireless LAN start-up after WLAN start-up emerged to take on the enterprise over the past 18 months, observers realized that a few years down the line, they wouldn't all be around. There was simply a limit to the number of companies the market would support regardless of quality of product, vision and leadership. But, the growing remake of companies from systems providers to IP and component providers looks to be a "kinder, gentler" shakeout that benefits everyone.

As the enterprise WLAN market emerged, I was constantly comparing its progress with the Layer 3 switching events of the late 1990s. The reasons were twofold: First, the introduction of that technology was the last "seismic shift" in the enterprise prior to WLAN, and second, today's WLAN companies are virtual reincarnations of some of the leading switching start-ups of the '90s. (Key past employees of switching trailblazers Alteon, Extreme Networks, Foundry Networks and others often are a core part of today's WLAN vendors such as AirFlow Networks, Aruba Wireless Networks and Trapeze Networks, to name a few.)

In one real sense, though, that's where the similarity with the LAN switching period ends. It was hard enough then to sell switches into an arguably less solidly Cisco world. It's more difficult with WLAN systems.

Even putting aside Cisco's iron grip on accounts that has only intensified in the intervening years, WLAN has a fundamental handicap. Where each LAN switch was its own technological island — and different brands, models and even generations could be intermixed — WLAN systems are, well, systems.

There are always at least two pieces: the distributed radio and the WLAN switch. Most deployments will require many distributed radios and likely multiple switches. Buying a WLAN system is to buying a LAN switch as marriage is to dating. It's a big commitment and not one easily changed without severe consequences.

Given the nature of wireless this aspect is not going to change. And, given the nature of the commitment, and the knowledge that a shakeout inevitably occurs, it's not surprising that corporations are reluctant to entrust their future to any company not yet 2 years old. From the vendor's perspective, it's a tough task to imagine matching the presence and support of companies such as Alcatel, Cisco and Nortel.

Thus, companies such as Enginx, about which I wrote last time, decided to not even go down that road but rather to focus on developing IP and building components that the aforementioned companies would integrate into products.

The day after that piece appeared, AirFlow — also noted in the column — decided it, too, could bring more value by focusing on its technology. CEO Bob Machlin noted that "... we made a strategic decision to partner with WLAN chip and system vendors — instead of fighting against them — to facilitate the growth of VoWLAN."

If this trend is picking up now, it's only right to give a nod to the trendsetter: Agere. Two years ago, it decided selling components to vendors was more important than competing against them in the retail space.

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Boca Raton, Fla. He can be reached at ktolly@tolly.com.

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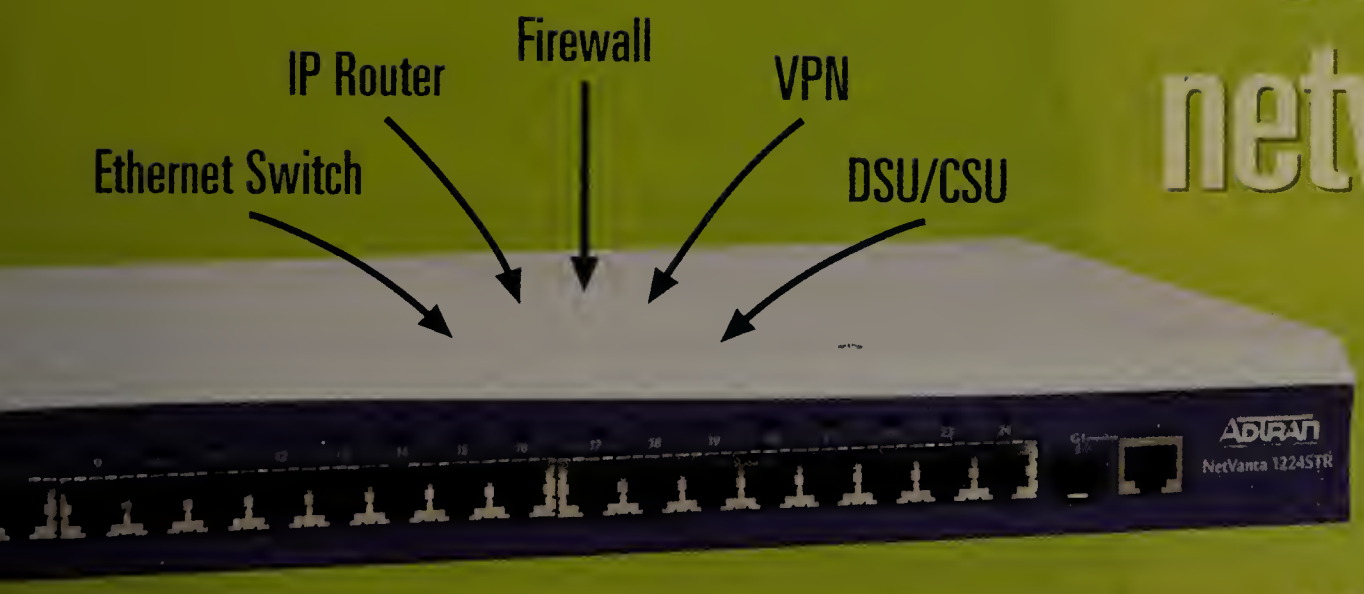

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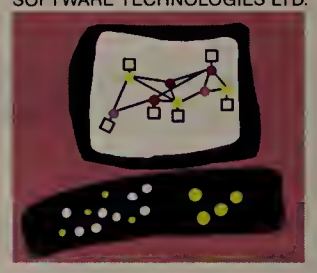

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Short Takes

■ **SAP** last week said it intends to give businesses a real-time view of what's happening to their inventories with an upgrade to its supply-chain management tools. A new version of its **mySAP SCM** software, due out by the end of June, will extend support for warehouse and logistics processes to incorporate information from radio frequency identification tags, the company said. The changes build on the earlier release of SAP's Auto-ID Infrastructure, a component of its Netweaver integration platform, the company said. The SCM upgrade also includes enhancements to the Advanced Planning and Optimization module, which lets businesses plan better for outsourcing of production operations.

■ **Siebel Systems** last week said it acquired banking software developer **Eontec** to add transactional capabilities to its banking CRM and analytics offerings. Siebel paid $70 million for the Dublin, Ireland, company and will pay up to $60 million more throughout 2005 if revenue and customer-satisfaction targets are met, executives said. Eontec developed a Java-based application suite for handling branch, call-center and Internet transactions. Siebel says the banking industry is in the midst of billions in IT spending as companies replace aging systems and build infrastructure for new channels such as online banking. Executives said in October that a new customer console system for branch banks would be a major addition to Siebel's 7.7 software release, which the company says is due out soon.

■ **Sophos** announced an anti-virus, anti-spam software package aimed at businesses with fewer than 100 employees. **The Sophos PureMessage Small Business Edition** includes filtering software for Microsoft Exchange or Simple Mail Transfer Protocol gateway and desktop software that can be configured for automated software updates. Pricing starts at $445 for a five-seat version.

Mercury seeks new orbit

Company expands application management efforts; bets on IT governance.

■ BY DENISE DUBIE

Mercury Interactive's aim is to become one of the top five software vendors in the world within the next 10 years.

On one hand, this goal seems ambitious, given that Mercury's 2003 revenue barely broke $500 million whereas PeopleSoft, No. 5 on the list of biggest software companies, tallied more than $2 billion in revenue in 2003.

On the other hand, Mercury is on the rise, with revenue growth of 27% year over year for the past five years, a $41.5 million profit last year and $1.2 billion in the bank that could be used for acquisitions or other efforts designed to expand the company.

"It's not a two- or three-year proposition," says Jason Maynard, a software analyst with Merrill Lynch. "But [Mercury] saw a synergy between testing and management, and saw the opportunity to evolve its product into a broader market."

Mercury, which initially made a name for itself among application developers with its quality assurance tools, says it will attain its growth goal by expanding into all aspects of application management, ensuring peak performance without requiring companies to overhaul their networks. Its offerings include LoadRunner testing programs, Topaz management products and a suite of IT governance software it acquired in 2003.

IT governance is still a developing market of which Mercury is hoping to win a large share, says Jasmine Noel, a principal at Ptak, Noel & Associates. Start-ups such as newScale and Centrata compete today with Mercury's IT governance products, but service desk providers such as Remedy (part of BMC Software), Computer Associates, HP and Peregrine Systems will be looking to tackle IT governance in their efforts to align business and IT in their product lines.

As for its application management tools, Mercury also runs into BMC and CA there, but industry watchers say the two larger vendors have yet to prove their mettle outside of the mainframe environment. Another competitor is Compuware, which matches up well on the product front but has seen its financials wane of late. In the area of application testing, Compuware trails Mercury, which is the "gorilla" in that market, Noel says. Winning customers in the application management market, though, will be a challenge for Mercury.

"The service/application performance management arena is much more fierce because every management vendor on the planet wants a piece of that market," Noel says. "To add fuel to the fire, distributed performance-monitoring features are becoming a necessary part of application testing,

See Mercury, page 36

PROFILE: MERCURY INTERACTIVE

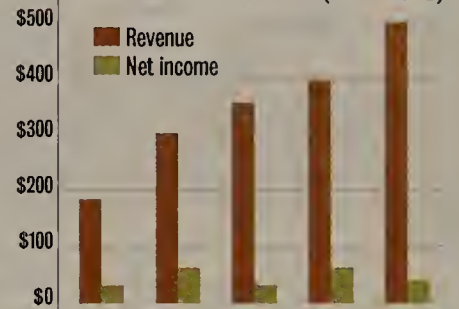
Location: Sunnyvale, Calif.

Founded: 1989 (went public in 1993)

Business focus: Application performance management and IT governance software; application delivery tools.

Employees: 2,322

Revenue/net income (in millions):



2003 acquisitions: Allerez (reporting and analytics), Kintana (IT governance) and Performant (J2EE diagnostics).

Concord looks to manage performance

■ BY DENISE DUBIE

Concord Communications this week is scheduled to unveil its Business Service Console that will let users track performance across all elements that support business service, aggregate and correlate data such as server response time, network latency and end-user experience, and present it in one interface.

If any element that supports the business service doesn't meet pre-defined service levels, BSC would indicate that the business service needs attention — either by a color-coded system on the management screen or by contacting an IT manager via e-mail, pager or phone, depending on the severity of the event. IT managers then can drill down through the BSC to find out the most likely cause of the poor service performance, whether it's on the network, systems, applications or end-user components.

"The BSC is what gives us the executive and manager views of the data that the operations staff have been using all along," says George Tillmann CIO and vice president at Booz Allen Hamilton, a management consulting firm in McLean, Va.

The firm has been using Concord software, eHealth, LiveHealth, Sysedge agents and Application Response for several years, and Tillmann currently is beta-testing BSC. He says his operations staff initially used Concord to manage transactional events, but he says the data could be used by IT and/or business management.

"Managers could use the same data, if kept sufficiently long and stored in a useful format, for trend analysis, budgeting and even fault prediction," he says.

BSC resides on a server, and IT managers use a wizard-like tool to define and model business services. BSC is add-on software that relies on data other Concord management software products collect, such as eHealth, Sysedge agents and Application Insight modules. BSC collects and correlates the data from multiple sources and presents an aggregate performance status based on the pre-defined service models.

Stephen Elliot, a senior analyst with IDC, says the software is a necessary move for Concord if the company wants to compete with vendors such as BMC Software, HP, IBM Tivoli and Micromuse, which all have software to monitor services. Because BSC requires users to have multiple Concord products from which to pull data, it might be a difficult sell into new customers accounts, he says.

BSC is scheduled to be available in June, and pricing starts at $100,000. ■

Start-up keeps an eye on MOM

BY JOHN FONTANA

Start-up Silect Software this week will release a tool that promises to help IT executives make sure Microsoft's monitoring software is doing its job and doing it properly.

Silect's Health Reporter 2004 watches for problems with the components and configuration of Microsoft Operations Manager (MOM), a performance and monitoring tool. It also can provide users with troubleshooting tips when problems arise and help decipher MOM alert messages.

MOM and Microsoft's System Management Server are two cornerstones in Dynamic Systems Initiative, which is Microsoft's plan to build a self-healing infrastructure for Windows.

With the critical role MOM will take on, end users will need to ensure it is functioning correctly.

"The problem with MOM is that when it is down it won't tell you it is down, short of setting up a second MOM hierarchy to watch the first," says Garth Jones, chief of application support infrastructure for the Canadian government's Department of Fisheries and Oceans. "When MOM dies at 2 a.m. for an unknown reason, Health Reporter sends us an alert through e-mail and then out to a pager."

Jones uses one MOM server to monitor 60 "clients" on his network. Health Reporter not only watches the server and its attached database but also can evaluate the operation of the agents running on the clients. Health Reporter collects detailed performance data not only for the MOM database but also from the Database Access Server/Consolidator-Agent Manager (DCAM) that sits between the MOM clients and the database.

"My goal with Health Reporter is to be able to go to the management team and say MOM is up on a reliable basis and we are meeting our goal of operating on a much more proactive basis," Jones says.

Health Reporter 2004 runs as a service under Windows so it doesn't require any user interaction to function once it is installed and configured on a workstation or server. The software provides comprehensive status and configuration reports on MOM, including the size of the database, memory usage and available connectivity.

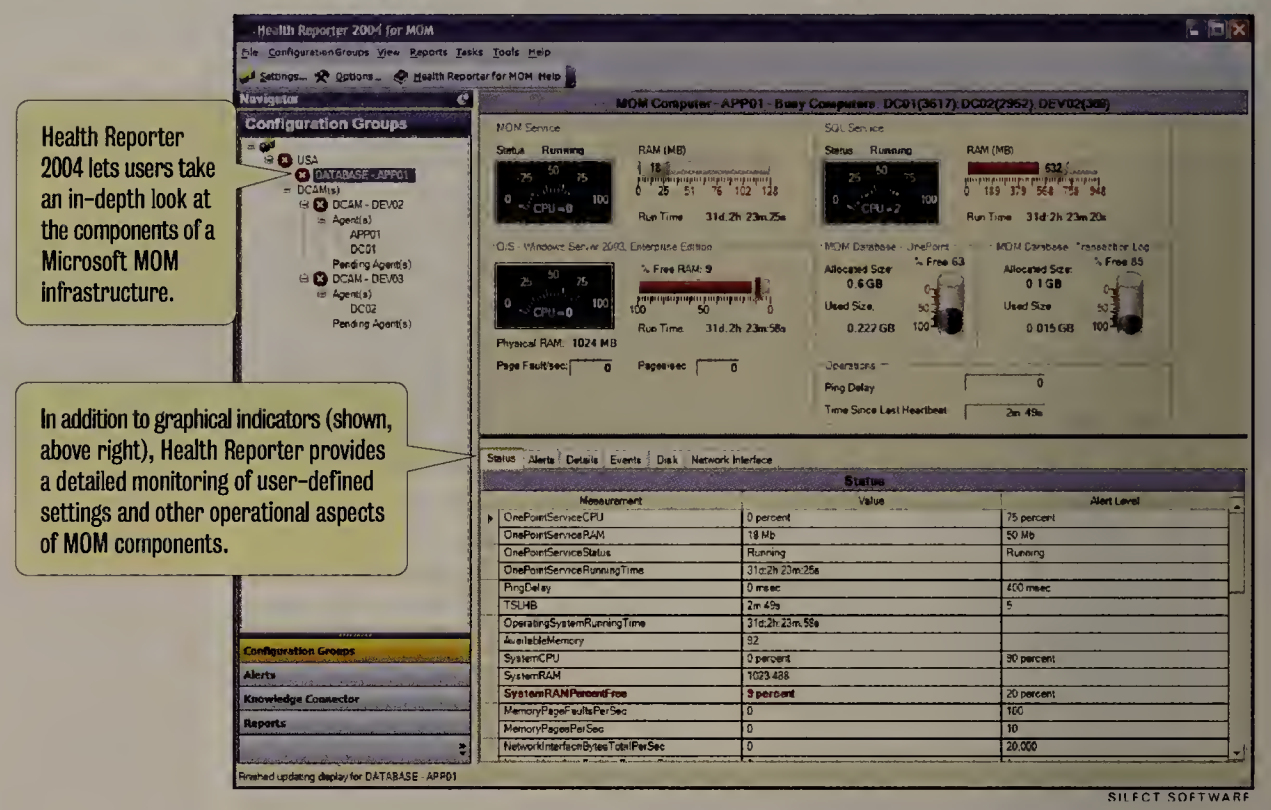
The software's Knowledge Connector automatically can search the Internet for information on MOM, how to troubleshoot and how to understand MOM alerts.

"We want to give organizations the ability to capture, share and reuse IT knowledge," says Harold Dyck, president of Silect.

Health Reporter 2004 for MOM costs $995, which includes a license to monitor and report on up to 50 MOM agents, unlimited DCAMs and one database. ■

Are you all right?

Silect Software has developed a monitoring software that keeps tabs on the operation of Microsofts Operation Manager, a performance and monitoring tool for Windows infrastructure.



SILECT SOFTWARE

Mercury

continued from page 35

and that is Mercury's potential weakness."

Management heavyweight IBM also is an increasingly direct competitor in light of its purchase of Rational and its application life-cycle management tools and amidst speculation Big Blue will look for ways to integrate those tools with its Tivoli management offerings. Yet Mercury's approach differs a bit from the established management players.

"Mercury has one advantage in that it already approaches management from a top-down approach," says Theresa Lanowitz, a research director at Gartner. That means Mercury focuses on optimizing application code and performance, and relating that to business objectives — rather than monitoring the underlying infrastructure. Mercury says it intends to leave deep-dive network and infrastructure monitoring to CA, HP and IBM Tivoli.

Another differentiator for Mercury is that its software is agentless, meaning its software doesn't need to be distributed across every managed system. Although Mercury is not the only company offering agentless monitoring, a majority of management products require multiple agents be configured and distributed, a time-consuming process for network managers.

Mercury is evolving its products through a mix of internal developments, partnerships with companies such as BEA Systems and IBM, and through acquisitions. The company last year bought out three companies for nearly $250 million, most of which went toward acquiring Kintana, a vendor of IT governance and business service management software. Mercury also bought Performant, a maker of testing and tuning technology for Java 2 Platform Enterprise Edition applications, and Allerez, a supplier of reporting and analytics technology. More deals this year aren't out of the question either, company officials say.

The company has steadily upped its research-and-development investments over the past few years, spending about $40 million in 2001, $42 million in 2002 and about $56 million in 2003. While the company does not break out R&D investment based on separate technologies, Mercury is focusing its efforts on improving diagnostics capabilities, automation of tests creation, and aspects of data integration/correlation across different domains, according to Boaz Chalamish, general manager and vice president of R&D.

Mercury is working to add technology in the areas of IT governance and application management, and will continue to maintain its application-delivery products. He says his group of about 540 employees also contributes to purchase decisions.

"R&D is very much involved in our merger-and-acquisition activities. In some areas, R&D is the driver," Chalamish says.

Overseeing Mercury's growth is David Murphy, who joined the company in January 2003 as vice president of corporate development. Murphy previously served as CEO of application analysis vendor Asera and as president of IBM Tivoli. He is one of a group of executives (including Vice President of Americas Sales Jay Larson, formerly with Network Associates, Oracle and Siebel Systems; and Oracle veteran Harry Gould, Mercury's vice president of alliances) hired in recent years to give the company the experienced leaders it needs as it seeks to grow and attract bigger customers.

"We are selling to a C-level executive now," Murphy says. "In the past, we talked to engineers. It's a different sale, and we need our sales team to know how to approach that."

"The biggest challenge for Mercury is managing growth. They need to expand from a tech-centric company to a company that understands the pain points for large companies and their overall business," Merrill Lynch's Maynard says. "Mercury needs to have executives in place that have the battle scars of taking a company from $500 million to $2 billion."

In an effort to get into more customer accounts, Mercury has reworked its software-licensing model to emphasize subscriptions (the company also offers perpetual licensing and hosted delivery).

A Merrill Lynch report shows that Mercury's subscription revenue increased from 3% to 20% of total company revenue over the past three years. In the fourth quarter of 2003, subscription-based licenses accounted for about half of Mercury's new orders.

Murphy says flexible pricing lets new customers get started, without making a huge capital investment and makes it easier for current customers to test new products without making a long-term commitment.

Royal Caribbean & Celebrity Cruises in Miami, which has used Mercury offerings such as its hosted Web testing service and Topaz application management tools, takes advantage of the vendor's assorted pricing options.

"A lot of our work is done on a project-by-project basis, and it's very tangible to track the cost of software with term [subscription] licensing," says Gregory Martin, Royal Caribbean's manager of integration.

Martin says he is optimistic Mercury will continue to grow. As it does, Martin says he would like to see Mercury deliver more tools that address the process and people sides of application management. ■

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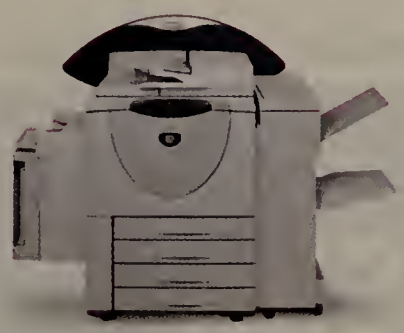

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'NET INSIDER

Scott Bradner

Enforcing the permission-to-spam act

It has been four months since Congress passed the permission-to-spam act and President Bush signed it with gusto. The first actual rule related to this act has just been published and the period to allow you, me and the spam industry to comment on the act's purposefully vague language has just ended. It might still be quite a while before we see any enforcement action related to this act, and it is likely to be the end of time before we see any effective enforcement action.

President Bush signed the Controlling the Assault of Non-Solicited Pornography and Marketing (CAN-SPAM) Act of 2003 on Dec. 12 and the act went into effect Jan. 1, 2004.

The bill's sponsors at the time touted the imminent end to the flood of crap in everyone's mailboxes. But anyone actually taking the time to read the act quickly realized that the primary goals of this legislation were to legally enable the sending of unsolicited bulk mail and to void any state or local regulations that actually tried to control the onslaught.

This shouldn't have been a surprise to anyone considering the apparent role of the spam industry in formulating the bill in the first place.

The act put the responsibility of interpreting and enforcing it into the hands of the U.S. Federal Trade Commission (FTC). The FTC has moved with care (read: slowly) to get public comment on various aspects of the act so it can write the regulations needed before any actual enforcement of the mostly useless provisions of the act can be undertaken.

I find it hard to get enthusiastic about the usefulness of enforcing a law that makes it legal for every one of the many millions of companies in the world to send me e-mail and provides me no way to say that I don't want to get their initial messages. I can, by going through a dance defined by each sender, say I do not want any follow-up mail — whoop-de-do.

One of the act's few provisions that might make it easier to automatically filter some of the worst crap is the provision that requires senders of sexually explicit unsolicited e-mail to include words in the subject line to warn the recipient of the type of content. The FTC has just finalized a regulation that says the warning must be the English character string "SEXUALLY-EXPLICIT:" (www.nwfusion.com, DocFinder: 1728). We conceivably will see this soon, but I wouldn't predict that the FTC is willing to even try to enforce any parts of this generally silly act.

By all measures and experience, the amount of spam has significantly increased since the federal government said it was OK to spam. I find it hard to imagine that the FTC, mostly on its own, will have any perceivable impact because the organization must enforce an act that says it is fine to spam. It's possible that the FTC could penalize some spam senders for illegally using third-party computers to forward spam, but I'm not holding my breath for that to have any useful effect.

Disclaimer: The concept of "useful effect" and the name "Harvard" are not always associated with each other, at least in some people's minds. But this pessimistic view is my own, not that of the university.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

More online!

Listen to highlights from Mark Gibbs' keynote presentation from a recent *Network World* event on strategies for creating a messaging environment that ensures network integrity and user productivity, and returns power and control to enterprise network managers.

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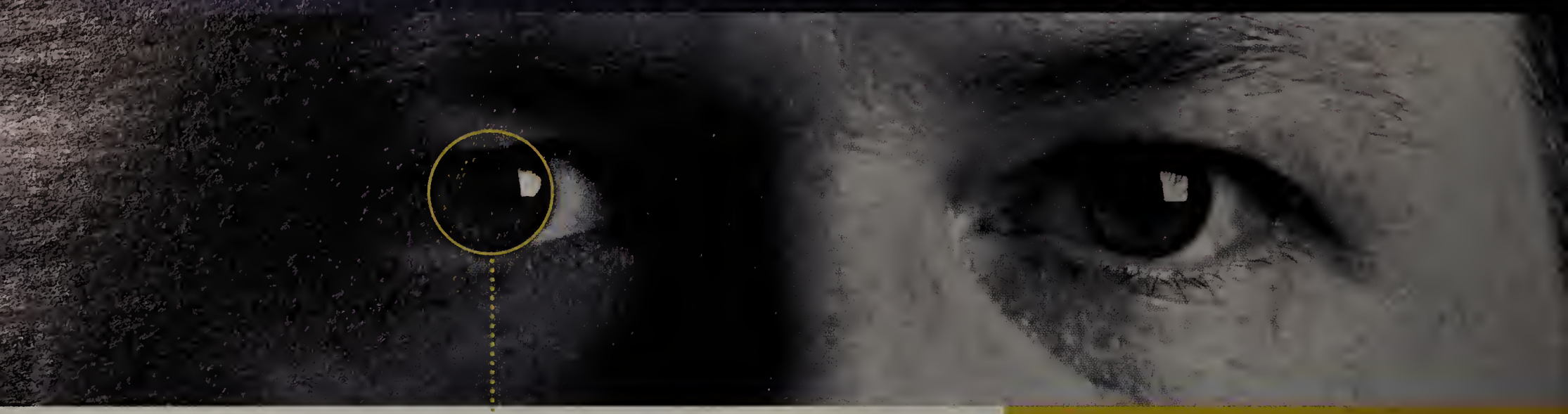

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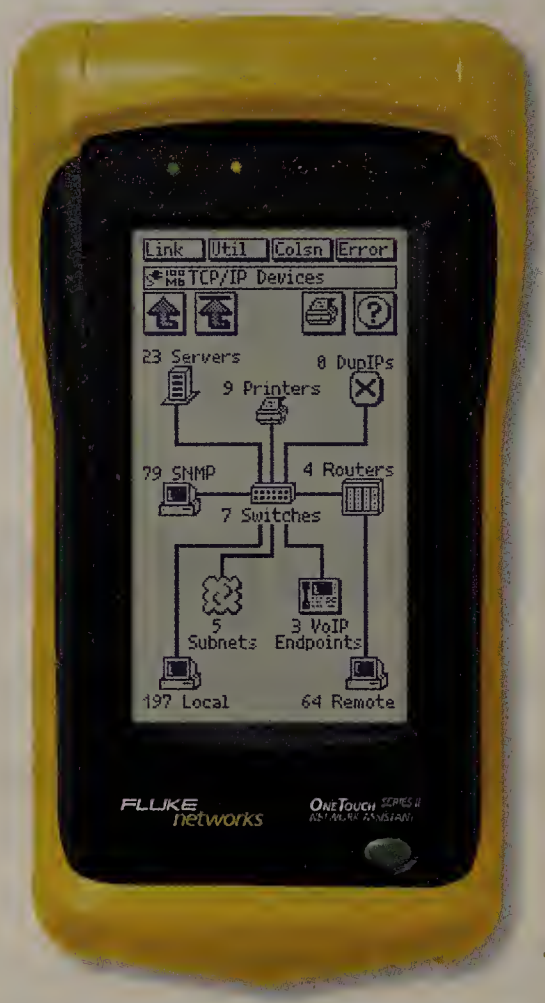

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ServiceProviders

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Verizon goes national with broadband IP net

■ BY JIM DUFFY

Having spent the past two years building out its national broadband IP infrastructure, Verizon says that network will start paying dividends for the carrier and its customers starting this month.

The network supports Verizon's Enterprise Advance initiative, an effort to attract large businesses, government organizations and educational institutions that require nationwide service. The carrier estimates Enterprise Advance will generate $250 million in revenue this year.

Verizon says the cost of building the network is part of its $12 billion to $13 billion annual capital budget. Analysts have estimated the network cost at $1 billion to $5 billion, a range Verizon neither confirms nor denies.

The Multi-protocol Label Switching-enabled, fully meshed network will let Verizon extend its VPN and transparent LAN services nationally; currently, these are available only within its 29-state region.

The carrier's national IP VPN service also provides the foundation for a managed enterprise VoIP service scheduled to launch later this year.

In addition to the transparent LAN service (TLS), the network will support frame relay and ATM access, plus private-line access for business-class VoIP customers. TLS is a multi-point service in Verizon's metropolitan areas but a point-to-point "Ethernet virtual circuit" offering nationally, compliant with Draft Martini standards, officials at the RBOC say.

Verizon says it will offer quality-of-service, end-to-end management and service-level agreement (SLA) guarantees on these national services. Business-class VoIP will support four classes of service.

The RBOC initially will target these services at its in-region data and voice customers, but has designs on the data customers of interexchange carriers (IXC) AT&T, MCI and Sprint.

Indeed, all the RBOCs covet IXC data turf as they attain approval to offer long-distance services first within and then outside their operating regions. The large enterprise data market represents a $100 billion opportunity for the RBOCs, according to Verizon.

"It's a pretty important announcement for them in terms of winning more enterprise business," says David Parks, a senior analyst at The Yankee Group. "Geographic reach is important because enterprise needs expand beyond one region. It's important in the long-term."

See Verizon, page 42

Mapped out

Verizon has installed routers in 13 major cities for the core of its national IP backbone.

Short Takes

■ **AT&T Wireless** and **Sprint** last week announced a reciprocal Wi-Fi service roaming agreement for Denver International, Kansas City International, Philadelphia International, Raleigh-Durham International and Salt Lake City International airports. This is the first such agreement between the carriers, whose customers will be able to roam using their existing user IDs and passwords. The carriers say their systems will be linked sometime this year.

■ **Lambda Opticalsystems** has landed $14 million in Series B funding from Sevin Rosen Funds and ComVentures. The funding comes after $10 million in Series A capital awarded in March 2003. The start-up develops all-optical switches that integrate 3D MicroElectroMechanical Systems technology with dense wavelength division multiplexing to let wavelengths carrying different services be switched without electrical conversion. This capability reduces network capital requirements by up to 80%, the company says. Lambda also makes management software.

Internap takes second stab at VPNs

■ BY DENISE PAPPALARDO

After bagging an earlier homegrown VPN offering two years ago upon determining it was too complex and expensive, Internap last week said it is coming out with a new one.

The company's Managed VPN service is a customer premises equipment-based offering based on Cisco routers and VPN client software.

While Internap is entering a crowded market — AT&T, MCI and Sprint have delivered such services for years — observers say the company is doing several things to make its offering stand apart.

For example, by using Cisco's VPN client software for end users accessing their corporate VPN via DSL, Wi-Fi or cable modem, Internap is focusing on tight security even at remote sites, says Andreas Antonopoulos, principal analyst at Nemertes Research.

The client supports the same security, IPSec encryption and tunneling as Cisco routers, says John Keller, product manager at Internap.

The service requires users to deploy a Cisco router at their site to support secure IPSec tunnels that run over Internap's national IP backbone. Customers can use Cisco routers they have in-house, or they can purchase new ones.

The service includes router and VPN configuration and customer premise setup, equipment and software maintenance, 24-7 IP VPN performance monitoring and software updates and patch support.

Internap also is trying to make its mark by offering proactive network performance guarantees. Its standard service-level agreement (SLA) guarantees 100% network availability, latency less than 45 millisec and packet loss of less than 0.3%.

This is the same SLA available to the service provider's dedicated IP customers.

Internap supports its Managed VPN service over other service providers' dedicated Internet connectivity. Internap makes this feature available to users who might have a contract with another service provider that they can't or do not want to break. But Keller notes Internap's performance SLA only applies to Internap IP connectivity.

Because Internap discontinued its old VPN offering, it has been reselling VPN services from Blue Ridge Networks and VeriSign, which it will continue to do, Keller says. Blue Ridge has a VPN product that specifically conforms to privacy regulations in the healthcare industry, and the VeriSign offering includes digital certificate support. He says this is key to some users such as those in the financial industry.

Internap's Managed VPN service costs $300 per month, per dedicated site, regardless if that site is connecting via a fractional T-1 or OC-3. Users pay Internap's standard access fees on top of the VPN service charge. Internap's price for a dedicated T-1 is about $500 per month. The service provider's list price for a dedicated T-3 is about $4,500 per month. ■

EYE ON THE CARRIERS

Johna Till Johnson

Cell phones and RFID: Two great tastes, together

You've heard a lot recently about radio frequency identification technologies and how they let companies track their wares more efficiently. Most notably, Wal-Mart and the U.S. Department of Defense have mandated RFID support from their suppliers, a move that's certain to drive strong investment in the technology going forward — at least among manufacturing and distribution companies.

But what if you're not a manufacturer, distributor or direct supplier to such firms? If you figured RFID wouldn't be relevant to you, think again. RFID in conjunction with cellular technologies can improve the productivity of a non-manufacturing workforce in several ways.

The trick lies in envisioning RFID applications that integrate seamlessly with your mobile infrastructure. In other words, imagine if you didn't need a specialized RFID reader to capture device information but could take and transmit readings via an ordinary cell phone. How might that improve the day-to-day productivity of you and your peers?

Take automating asset tracking. Today, facilities and IT departments spend an inordinate amount of time tracking physical assets such as PCs, routers, even mundane things such as cables and AB switches. Instead of having to send techs out to remote sites to manually count devices, what if a cell-phone-equipped office administrator could "swipe" relevant devices and send up-to-date information (including builds, revenue numbers and the like) back to your centralized asset-tracking application?

Or say you've got a traveling sales force that regularly needs to record data such as miles traveled or customers visited. This information might be used for CRM applications and for expense reimbursements. Today, that salesperson has to wait to get back to the hotel or office, log on to the appropriate application and enter data. The wait reduces both the accuracy and timeliness of the data — and hence, the company's operational efficiency.

What if that same salesman could hit a few buttons on the car's dashboard and have the information sent back to those applications via cell phone? Think how happy he would be to arrive home after a trip to find an accurate expense check already in the in-box. (Not to mention how happy the sales manager is at having a complete, up-to-date record of client contacts at any point in time.)

That's exclusive of the folks whose day-to-day job is about tracking retail products — soda cans in delis, ATMs in lobbies. Those folks could obtain fast, easy, up-to-the-second access to information about how their products are displayed and supported.

You get the picture: RFID plus mobile phones is an idea whose time has come. So how come mobile phone manufacturers are asleep at the switch? They aren't. Not all of them, anyway. Nokia recently introduced a Mobile RFID kit for its 5140 GSM phones. (Check out www.nwfusion.com, DocFinder: 1729, for details). Whether or not this product takes off, it's a safe bet that something like it will. Cell phones and RFID are just too good a combination to ignore forever.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Netli expands 'Net services

■ BY TIM GREENE

IP service provider Netli is adding two services: one that it says gives customers better control over the performance of individual applications and another that offers backup if a data center fails.

Called NetliView and NetliContinuity, the new offerings extend the provider's core service, NetLightning, which uses a proprietary protocol to speed traffic across long stretches of the Internet.

NetLightning is designed to reduce network response time to less than 1 second by using Netli points of presence connected by Layer 4 trunks created with a replacement for TCP that the company says is more efficient. Once customers sign up for the service, they redirect traffic to the nearest Netli POP and it is carried over Netli virtual trunks to the POP nearest the destination address.

Hardware vendors such as Expand and Peribit accelerate traffic point-to-point, but Netli's service is meant for high-volume sites tapped by users whose locations are unpredictable. An example is a customer service site to which customers can come from any Internet-connected machine.

The new NetliView service is designed to monitor performance of individual applications carried over Netli's network. This monitoring is done using Mercury Interactive Topaz monitoring software (Netli and Mercury co-developed NetliView and have a sales and marketing agreement in place).

The service also can correlate performance problems with their likely cause, reducing the time it will take IT staff to correct them, Netli says. The monitoring is updated every 15 minutes.

NetView pricing is based on how many regions of Netli's network are being monitored. It costs $1,000 per month for three regions and $2,000 per month for all 16.

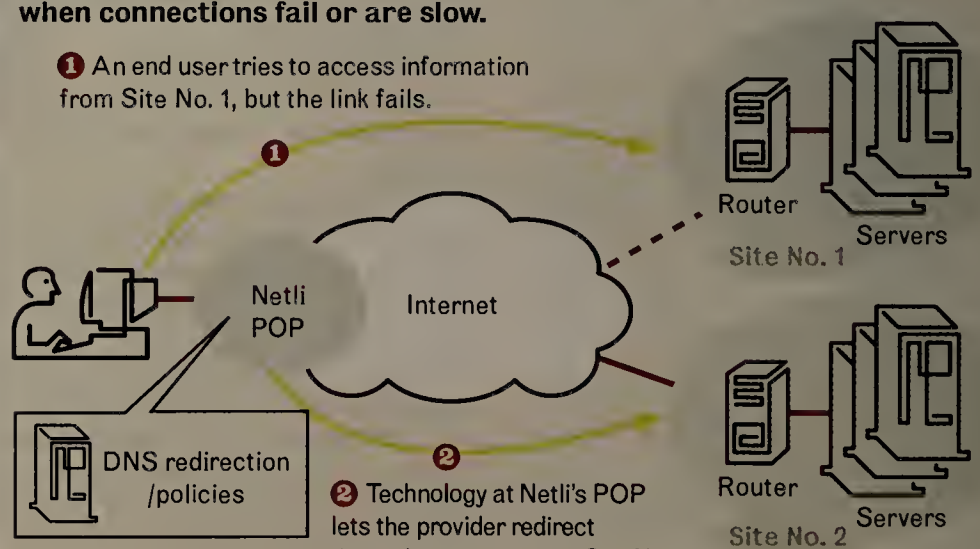
Alternatives to this type of monitoring are generally more expensive, says Peter Sevcik, president of NetForecast, a network technology consulting firm. These include Gomez Internet Performance Management services and Keynote's Web performance service, Red Alert.

The other new service, NetliContinuity, uses DNS redirection to send traffic to an alternate data center if the primary one fails. Customers also can set policies so if performance of a particular connection dips too low, the network will reroute traffic to a better performing one.

NetliContinuity costs $1,500 per month for basic failover if one data center dies. If customers want traffic redirected based on where server requests are coming from or to give a better response time, this intelligent-site-selection service costs $3,000 per month.. ■

Just in case

Netli's NetliContinuity service is designed to complete communication across corporate Internet-based WANs even when connections fail or are slow.



2 Technology at Netli's POP lets the provider redirect the end user request to Site No. 2 via DNS redirection. If the connection was just slow, customer-defined policies also would redirect the traffic.

Verizon

continued from page 41

Verizon already offers private-line backup, OC-48 and OC-192 metropolitan SONET and point-to-point Ethernet-over-SONET services to IXC customers, officials say.

Verizon's new national backbone and associated metropolitan and regional networks include more than 200 routers in 56 markets. The backbone's core consists of routers in 13 major cities. The number of points of presence will expand to 65 later this year and to 100 in 2005, Verizon officials say.

"I think Churchill said, 'This isn't the beginning of the end, it's the end of the beginning,'" quips Thomas Nolle, president of consultancy CIMI. "[Verizon has] established focused nodes on a national footprint. That gives them the minimum credentials required to go after enterprise business. But it's pretty clear that they're going to have to partner with somebody to obtain full coverage."

Nolle says the industry scuttlebutt is that Verizon will tap Level 3 Communications for trunks between cities that are not part of the RBOC's core 13. A Verizon spokesman confirmed that the RBOC has a temporary, unannounced, facility-leasing arrangement with Level 3 but that Verizon eventually plans to build its own Enterprise Advance facilities in markets where it does not have them.

Verizon uses Juniper T-series routers in the national backbone, Cisco 12000s in the local-access and transport-area core, and both vendors' gear for the service edge.

In completing its backbone, Verizon joins fellow RBOCs SBC and BellSouth in offering more complete VPN services. SBC last month announced a nationwide network-based VPN offering designed to go directly against data offerings from the IXCs.

The Yankee Group's Parks says SBC's deployment plans for this year and next are more aggressive than Verizon's, which means SBC might be able to serve a greater number of markets faster.

BellSouth announced extensions to a year-old network VPN service targeted at companies with 60% of their locations within BellSouth's nine-state region. The extensions include ATM, Ethernet and tiered DSL access; a turnkey packaging option; intrusion-protection features; improved SLAs; and integration with other BellSouth managed voice and data services.

"BellSouth is more regionally focused," Parks says. "They've got some out-of-region capabilities in place [via gateways and a partnership with Qwest]. But they're still evaluating what type of out-of-region opportunities to pursue." ■

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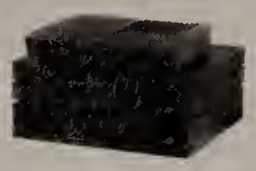

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Net.Worker

■ PRODUCTS, SERVICES AND STRATEGIES FOR TYING TELEWORKERS TO THE ENTERPRISE

Buffalo eases WLAN security setups

AOSS technology negotiates highest supported security settings among WLAN devices automatically.

■ BY TONI KISTNER

In the enterprise world, wireless data is protected by sophisticated security policies and encrypted with a VPN, and users are authenticated via 802.1x and a RADIUS server. But in the consumer/small office world, Service Set Identifiers are called "Linksys," TKIP is confused with "teacup" and WPA is remembered as FDR's "Work Projects Administration."

Worried about high return rates and product support costs, small office/home office (SOHO) hardware vendors have done little to educate consumers about the security risks of wireless LANs, or how to protect against security risks. Leaving security disabled by default solves the short-term problem; what customers don't know they can't call tech support about, the thinking goes. Typical product documentation offers only basic implementation requirements.

To compound the problems facing home workers, even leading SOHO hardware vendors Linksys and Netgear don't agree on the importance of SOHO WLAN security. Linksys plans to have all its SOHO wireless gear Wi-Fi Protected Access (WPA)-certified, but Netgear says that's overkill and that changing the SSID number or turning off the SSID broadcast is enough of a measure to take for consumers.

"I agree with Netgear that wireless security might not be that big a problem right now, but as Wi-Fi propagates it'll become a more and more of a problem. Wizards that help people set up WEP keys and remind them to change their SSIDs would help. But the big problem is that vendors are still shipping products with the security turned off, and the SSID is the default. That's not good," says Aaron Vance, senior analyst at Synergy Research Group.

But smaller vendors are recognizing that easing security setups could help them gain market share. Buffalo Technology — the U.S. division of Melco, the leading consumer/SOHO PC peripheral manufacturer in Japan — looks to grab a bigger piece of the U.S. consumer market by introducing the AirStation One-Touch Secure System (AOSS). This unique technology — a protocol Buffalo has worked on for a year — automatically sets up a secure wireless network with the push of a button. AOSS detects and configures other AOSS-enabled devices and creates a secure connection based on the highest level of security all devices on the network support.

"More things like Buffalo AOSS will help, but so will more information in the product literature about security risks and vendor recommendations on how to make the network more secure," Vance says.

Recently, logear introduced an 802.11g router with a patch antenna that lets users focus signals directly toward a specific location. The company says this Super-Fi technology will "eliminate nosy neighbor Wi-Fi snooping" by prohibiting outside access to the user's network. The Wireless-G Broadband Router (GWA502) costs $130.

This strategy has some confused. "It's a subtle way to differentiate that's kind of interesting, but I'm not sure it's relevant," Vance says. "If you configure your gear right for security, there's no need for this."

Moreover, users would have to position the router in the corner of the home or office to cover the entire space, which could leave dead spots.

AOSS magic

Buffalo's first AOSS product is the AirStation 54M bit/sec Wireless Cable/DSL Router with AOSS (WBR2-G54; $100). The 802.11g router includes a four-port switch, supports Wi-Fi Protected Access (WPA), and includes security features such as intrusion-detection software, dynamic packet filtering, network address translation and a stateful packet inspection firewall.

When users first install an AOSS router, they press the red button on the back of the unit for 3 seconds. When the light blinks, they then access the software interface on the client device and click on an icon of a red button there. Once AOSS is enabled on both devices, the client finds the router and assesses its supported security protocols.

The WBR2 supports Temporal Key Integrity Protocol (TKIP). If the client also supports TKIP, the router generates a key based on random variables such as the time, date and type of client, and condition of the data packets. The 5K-byte TKIP key is generated and passed through the router to the client over a 64-bit WEP-encrypted tunnel. Upon transfer, the key is activated, it reassociates with the router, then generates a random SSID. The SSID is the maximum 32-character length to ensure it doesn't conflict with a neighbor's AOSS network. The router sends the SSID and the TKIP key to the client, and the client disconnects from the router. The router activates the SSID and TKIP scheme, and the client connects to it.

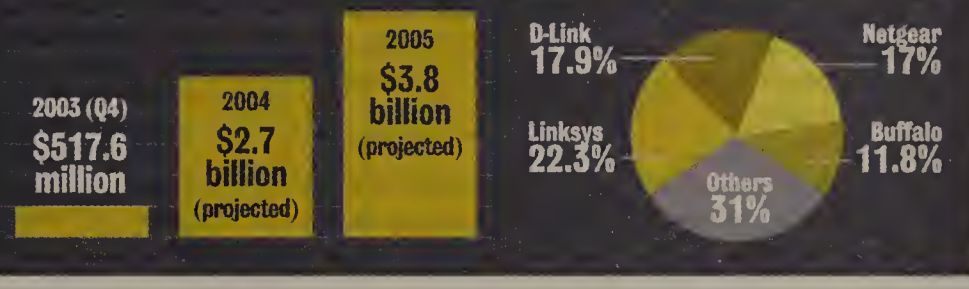
But what if an Xbox that only supports 128-bit WEP is next added to the network? The AOSS router then automatically lowers the security settings for itself and for the first client from TKIP to 128-bit WEP. The router will then be offline for about 3 minutes.

If users introduce a non-AOSS device into the network, they can log on to the router and extract the SSID and WEP key (for example) from the AOSS management page and set up the new device manually. The management page provides access to the clients, letting users disconnect or block devices as needed. There's also a feature that lets users generate a new security key if the existing one becomes compromised. Should they introduce new devices to the network

See Buffalo, page 46

Easing Wi-Fi security setups

As the consumer/SOHO wireless LAN market keeps climbing, the need for secure WLANs will only intensify. Buffalo AOSS breaks new ground in easing security configuration. But other vendors can do their part by improving documentation, creating wizards to help users set up WEP keys and reminders for changing SSIDs.



Short Takes

■ **Cisco-Linksys** has released the first products supporting the CableHome 1.1 specification, from CableLabs. Based on the Data over Cable Service Interface standard, CableHome allows for the distribution of broadband services via a secure and managed residential gateway. CableHome 1.1 adds security features such as parental controls, quality of service and support for home servers, teleworkers and home offices.

■ **Zyxel** recently introduced two security routers for small offices. The **Prestige 334** and **334W** include a stateful packet inspection firewall, denial-of-service attack prevention and Triple-DES IPSec VPN encryption. The 334W includes an 802.11g wireless access point that supports Wi-Fi Protected Access, 802.1x user-authentication and Wired Equivalent Privacy encryption. Zyxel says near 100M bit/sec throughput makes the routers ideal for Web, e-mail, gaming, videoconferencing and VoIP servers. The routers cost $70 and $90, respectively.

■ **Polycom** has announced a high-end personal desktop videoconferencing package for remote offices and executive suites. The **Polycom VSX 3000** includes a camera, microphone, speakers and 17-inch LCD display that doubles as a monitor. With Polycom's WebOffice personal conferencing portal, the VSX lets users access buddy lists with presence to launch instant video calls with group and desktop videoconferencing systems. The product costs $5,000.

TELEWORKER BEAT
Toni Kistner

CEA makes telework push

Telework just won a powerful advocate, the Consumer Electronics Association. The organization wants to increase the number of broadband connected households from 20% today to 50% within five years, and sees telework — not home entertainment, as you might expect — as the means.

CEA's 1,500 member companies account for $90 billion in combined sales annually, and all profits from its mammoth Consumer Electronics Show are reinvested into furthering its industry services, which involve market research, public policy, technical standards, and education and development. In terms of telework, the group just launched a promotional campaign aimed at consumers that involves the publication of glossy literature, market research and industry partnerships.

"One of the main goals of CEA as an organization is to promote broadband deployment nationwide," says Brad Jones, CEA's manager of communications. "A good portion of our member companies are producing the products and technologies that make telework a reality. We want to show how consumer technology is allowing people to maintain work/life balance, and how products and telework are helping reduce congestion."

First out is a brochure called "TechHome Broadband, the Teleworker's Guide," which welcomes readers to the "broadband generation." It lays out the basics for setting up a home office and stresses the importance of broadband. It provides a cheery, easy-to-understand overview of network technologies, as well as information on future technologies such as broadband over power line and fiber-to-the-home. There's some information on entertainment technologies, such as definitions of the various flavors of MPEG, but overall the focus is on work.

The group is forming partnerships with the Washington D.C.-based telework organizations the International Telework Association and the Telework Coalition. CEA finds the first group attractive for its industry member contacts, the second for its Capital Hill connections. In May, CEA plans to conduct a market research campaign to determine who's teleworking, why and when, Jones says.

Several factors have spurred the group's interest in telework. One is the results of new broadband research from the Pew Internet and the American Life Project. In February, the Pew Research Center surveyed 2,204 Americans, 63% of which were Internet users. It found the number of Americans with broadband access increased 60% since March 2003, to 68 million. Forty-eight million, or 39%, of Americans have high-speed access at home. That's 24% of the population. More than half (52%) of college-educated people younger than 35 have a home broadband connection.

Also important to CEA was Pew's finding that job-related tasks ranked third in reasons respondents switched from dial-up to broadband.

"People are getting broadband for job-related tasks," Jones says. "Once it's there, why not maximize its use by buying our members' products to help make telework something people can do not just at night and on the weekends, but once or twice a week? That'd get more cars off the road."

CEA's enthusiasm is also born of Jones' and other CEA employees' personal experiences. The Arlington, Va., organization's 130 employees suffer the worst traffic congestion in the country. About 15% of CEA employees take advantage of the group's informal telework program. Jones, who lives in Centreville, Va., commutes three hours a day, driving 10 miles by car then the rest by subway. His wife spends three-and-a-half hours daily commuting to her job with the Federal Emergency Management Agency in Washington, D.C.

While his wife is on maternity leave, they are trying to figure out a full-time telework arrangement so they can spend time with the baby while avoiding the $1,000 monthly cost of daycare.

"Now with the baby, the option to telework is more important to me than ever," Jones says. "I can work out on the deck in the sunshine, with my son next to me in his little boppy chair. How can you beat that?"

Kistner is the managing editor of the Net.Worker section for Network World. *She can be reached at tkistner@nww.com.*

Buffalo

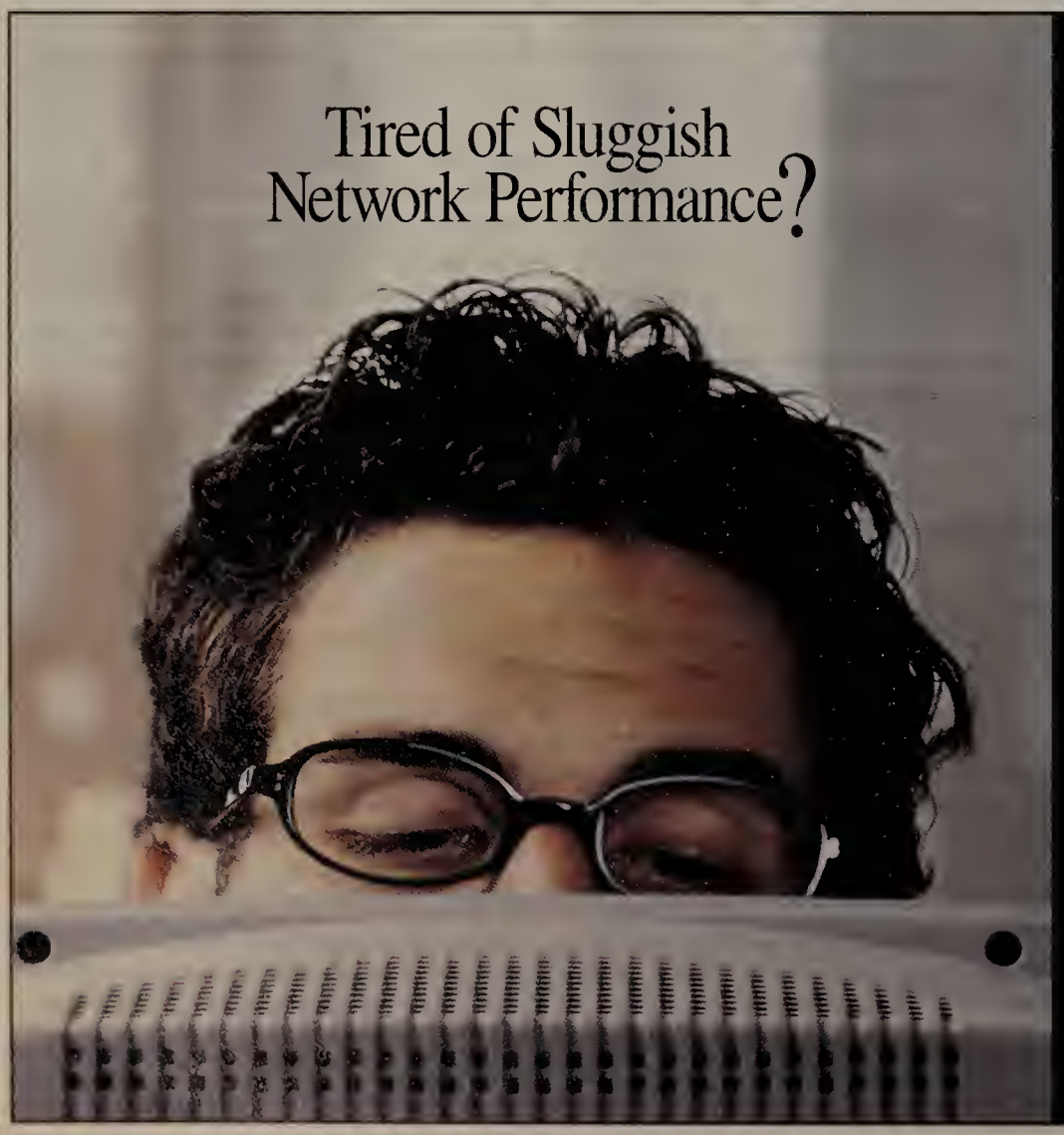
continued from page 45

and aren't sure what the highest level of common security is, they can push a button that will reassess the clients and send them new information.

AOSS is a standards-based technology that Buffalo customers can download onto existing Buffalo PC clients and some older equipment. The company's initial goal is to release a full line of AOSS hardware, then to license the technology to consumer electronics manufacturers for use in televisions, DVD players and printers.

"[Consumer electronics] manufacturers aren't computer gurus, and neither are TV folks. They don't want to deal with tech support, or ask their customers to type WEP keys into a TV," says Brian Verenkoff, Buffalo product marketing engineer. "Put a button on the back, there's minimal support. Now you have a Sony TV and a Toshiba DVD, and you'll have them work together seamlessly, securely."

Verenkoff says Buffalo might release a universal client manager to propagate AOSS, a software client that would let users bring non-AOSS clients into the network via the button rather than having to configure security manually. But such a strategy would lessen the value of Buffalo AOSS hardware. ■



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Technology Update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

ARS optimizes delivery of data

■ BY BRENDON HOWE

Enterprise file storage generally consists of a mix of direct-attached storage, network-attached storage and storage-area network resource islands that are individually managed and presented. Storage capacity across islands is often unbalanced; and adding, consolidating or balancing resources is a manual process that requires client reconfiguration. This causes disruption to data access. Adaptive Resource Switching solves these problems.

ARS gathers files from heterogeneous storage resources and file servers into a virtualized data pool so the files can be managed more easily. The technology lets corporations increase the utilization of storage resources and easily adapt them to meet changing user and application demands.

ARS interprets and maintains the state of file data (metadata) as it processes the data flow from client to storage device or server. It then applies this metadata knowledge, in conjunction with back-end storage resources, to deliver the data to applications more efficiently.

Implemented in a specialized switch, ARS offers the throughput and latency characteristics of a regular network switch while maintaining the metadata characteristics and the data management of a sophisticated file system. It can scale corporatewide by interconnecting multiple ARS devices over a network.

ARS uses TCP/IP and communicates with client applications and back-end storage infrastructure through Windows and Unix file access protocols. Consequently, it can support heterogeneous storage systems to maintain storage infrastructure.

The technology solves problems in three aspects of storage: client presentation, data distribution and storage management.

Once installed into a network, ARS inventories the file systems connected to it as the user configures. It then exports the data inventory profile to the clients in the way Unix and Windows systems are accustomed to, irrespective of the back-end file systems, with no change in security and authentication methods.

An export function provides configurable client presentation in a mount point, or directory from which you access information that is stored on a local or remote disk resource. ARS provides significant flexibility in client presentation, letting administrators configure mounts for each system all the way through to one, enterprise-wide mount point for all storage systems. By independently managing the client access export, ARS eliminates the need to reconfigure clients during storage provisioning; adds, moves and changes are done without disruption to the client.

The data distribution services of ARS place data across a corporation to improve performance by locating data closer to where it is needed. ARS monitors performance characteristics and automatically triggers data to be replicated or migrated closer to an application when performance thresholds are encountered. It intelligently moves data without access disruption or client mount point changes and ensures write consistency across all locations.

ARS uses a network to automatically replicate data sets off-site to provide more-efficient data recovery mechanisms. In the event of a failure, replicated data sets are quickly accessible to client applications using the same access configurations managed by the presentation services.

ARS storage management services aggregate the physical storage resources connected to a switch and automatically export the total capacity to the client export service. The technology adaptively manages the aggregated file systems individually by controlling data placement (file writes) and access (reads) without affecting the client presentation services. For example, files/directories migrate from a resource with limited free space to one with more free space without disrupting applications. Storage classes are defined to economically manage data in relation to its value to an organization, significantly improving utilization by freeing capacity within existing systems.

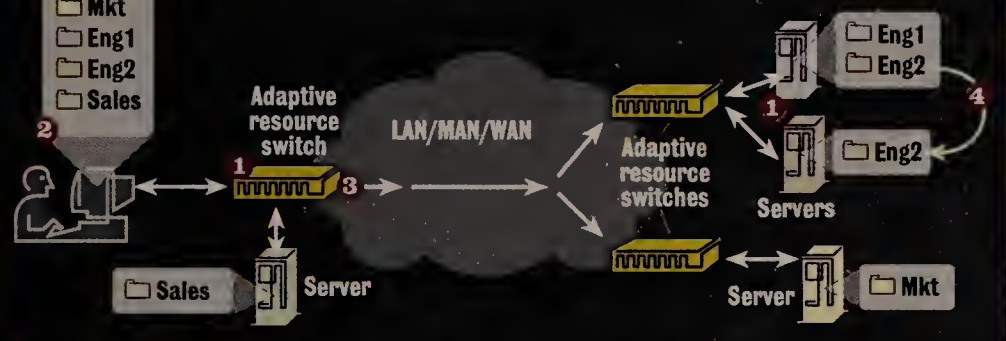
ARS lets corporations globally manage unstructured data while reducing server and storage infrastructure needed to support applications. This new storage switching technology's standards-based approach works across heterogeneous systems, letting corporations better utilize current systems while transforming their data centers into on-demand resources, yielding significant infrastructure cost savings in the process.

Howe is vice president of marketing and business development for Acopia Networks. He can be reached at bhowe @acopia.com.

■ HOW IT WORKS

Adaptive resource switching

ARS gathers files from heterogeneous file servers and storage devices into a virtualized data pool so the files can be managed and accessed more easily.



1. Adaptive resource switches learn the data infrastructure by querying the storage.
2. Adaptive resource switch presents a simplified, single-access view of the storage infrastructure to the clients.
3. Subsequent client/server flows take place through the adaptive resource switch via standard file-access protocols. The switch directs the client request to the appropriate physical storage device.
4. Migration and replication takes place transparently to clients.

Ask Dr. Internet

By Steve Blass

We need to deliver Windows 2000 application functionality to Linux clients. The open source Windows Emulation package WINE will not build and the commercial package VMWare will not install. Is there another option? We have Windows 2003 Terminal Services available.

Linux systems running X Windows can use rdesktop from www.rdesktop.org to make client connections to Windows Terminal Services servers. The client uses Remote Desktop Protocol to communicate with terminal servers to provide Linux users with a remote Windows desktop connection inside an X Windows session window. Download and unpack the rdesktop tar file, run 'configure,' and then run 'make' to build the executable program. The executable will be named 'rdesktop' and can be installed on multiple clients by copying the program. Rdesktop can then be used to connect to Windows terminal servers and XP Professional systems that have remote desktop connections enabled. Remote Desktop Clients can access a standard MS Office installation on XP Professional. Installing MS Office on a Windows terminal server requires that you use the Custom Office Installation Wizard.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet @changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE

Mark Gibbs

Making Outlook work for us, Part III

Here in the world of Gearhead over the last two weeks we've looked at bending Outlook to our will so we could launch external applications when Outlook reminder events were triggered from calendar appointment items.

So, by golly, last week we did it! In just a few lines of code we added the facility we were after by capturing the reminder event in a Visual Basic for Applications script that checked to see if the appointment was categorized as "RunApp." If it was, the script extracted the command to execute from the appointment body and handed it to a Windows Script Host (WSH) shell. Voilà! But how could we improve on this?

Well, instead of requiring appointments that are to run applications to be categorized, we could have the script check the subject of the appointment. If it started with, for example, "[Run]" we could have extracted the text that follows and hand that to the WSH shell.

Here's last week's code transmogrified into one subroutine and modified to do the above. So, if you tried last week's code, delete the function RunApp and replace the Application_Reminder code with the following:

```
Private Sub Application_Reminder(ByVal Item As Object)
    Dim Runstr As String
    Dim WSHShell
    If (TypeOf Item Is AppointmentItem) And _
        (Left(Item.Subject,5)="[Run]") _
    Then
        Item.ReminderSet=False
        Item.Close(False)

Runstr=Trim(Right(Item.Subject,Len(Item.Subject)-4))
        Set WSHShell=CreateObject("wscript.Shell")
        WSHShell.Run Runstr, 1, False
        Set WSHShell=Nothing
    End If
End Sub
```

Note the underscores at the end of some of the lines; these let a statement span multiple lines. Also there is no underscore after "Then" — this defines the lines down to the "End if" as an "if block." Without that the first line after "Then" would be assumed to be the end of the "If ... then ..." code.

An alternative would be to run the external scheduled applications from task list items rather than from calendar items. The only real difference would be to use the following test for TaskItem in place of the AppointmentItem test:

```
If (TypeOf Item Is TaskItem) And _
```

And of course you could allow scheduled programs to be defined by either type of item:

```
If ((TypeOf Item Is AppointmentItem) Or _
(TypeOf Item Is TaskItem)) And _
```

That's not too bad, but now that we've used this for a while we keep forgetting to set the reminder flag when we define an appointment or task item. Worse still, even when we do and we use appointments, we often forget to set the "remind beforehand" value to "0," which makes the reminder happen before the event's target time! Ugly.

The answer, our friend, is blowin' in a form: Yep, you can create a custom form that fills in just the specific values for a task or appointment item. You could even create a drop-down list of predefined applications as a separate control and then, using VBScript in the form, set the subject value of the item. We will leave that as an exercise for the reader.

Another thing: If you want the external application to be launched silently you'll have to set the third parameter of the call to WSHShell.Run to 7, thus:

```
WSHShell.Run Runstr, 7, False
```

See the Microsoft Developer's Network Library for the ghastly details (www.nwfusion.com, DocFinder: 1826).

There are, however, some ugly bits to this. First, there is the issue we discussed last week of reminders not calling the reminder event handler until about 40 seconds after the scheduled event. Ugh.

Then there is a really ugly problem when a reminder event happens. Even though you theoretically have grabbed it in the code above and cleared the reminder flag, if you have enabled reminder popups the popup window will appear. It won't have anything new in it, mind you, as you did clear the reminder from the item! Yuck.

So, there's lots of room for improvement and polishing. If you have any code you'd like to share, let us know.

Reminders to gearhead@gibbs.com.

CoolTools

Quick takes on high-tech toys

By Keith Shaw

Apple updates its PowerBooks, iBooks

Apple last week launched a new line of PowerBook G4 and iBook G4 notebooks, with updated processing power and internal wireless features.

The new PowerBook G4 line includes up to 1.5-GHz processors (for the 15- and 17-inch versions), faster graphics performance and Mac OS X Version 10.3 (aka Panther). All the new notebooks include AirPort Extreme 802.11g wireless LAN (WLAN) connectivity, Apple says. The notebook comes in five models (two 12-inch, two 15-inch and a 17-inch).

Features on the 17-inch PowerBook G4 include a 1.5-GHz processor; a 4x-speed SuperDrive (combination DVD-R/CD-RW drive); 512M bytes of 333-MHz, double-data-rate (DDR), synchronous dynamic RAM (SDRAM); digital video, VGA; S-Video and composite video support; Gigabit Ethernet port; two USB 2.0 ports; a FireWire 400 and 800 port; and an 80G-byte hard drive. Pricing starts at $1,600 for the 12-inch version and $2,800 for the 17-inch model.

The new iBook line includes three notebooks, ranging from the $1,100 1.0-GHz model with a 12.1-inch display to the $1,500 1.2-GHz model with a 14.1-inch screen. Options for the iBook line include internal Bluetooth and 802.11g AirPort Extreme WLAN connections.

The high-end model includes a 1.2-GHz processor, 256M bytes of DDR SDRAM (upgradeable to 1.25G bytes), a 60G-byte hard drive, two USB 2.0 ports, a FireWire 400 port, VGA, S-video and composite video support, 10/100M bit/sec Ethernet and a DVD-ROM/CD-RW drive.

More details are available at the Apple Web site.

Share presentations over 802.11g WLAN

D-Link Systems recently launched its AirPlus G Wireless Presentation Gateway (Model DPG-2000W), which connects to a VGA device, such as a projector, LCD panel or monitor, and lets users send presentations to the device over an 802.11g WLAN connection. Using the device in a multi-presenter meeting helps eliminate the need for cables being switched, as presentations can be sent wirelessly from an 802.11b or 802.11g notebook to the gateway, D-Link says.

D-Link's wireless gateway eliminates the need to switch cables for different meeting presentations.

Features of the gateway include support for displays up to 1,024-by-768-pixel resolution and 24-bit color. The gateway supports up to 128-bit Wired Equivalent Privacy encryption to secure the transmissions. Other features include a Web-based utility that lets users add banner-page customization for images, including meeting agendas and conference logos, and to adjust wireless and security settings; and the One-Click Session Manager software for letting presenters switch between sessions.

The gateway is available this month through D-Link's resellers and retail locations for about $250. For more details, go to the D-Link Web site.

Audioconferencing bridge goes wireless

Polycom last week launched the SoundStation2W, a conference phone system that uses 2.4-GHz wireless technology to eliminate phone cords from conference bridges. The system uses the World Digital Cordless Technology to provide 150 feet of range from the device to a base station that plugs into an analog phone line. The device provides up to 24 hours of talk time (with the optional upgrade, otherwise it's up to 12 hours), and up to 160 hours of standby time.

Cell phones also can connect to the device, allowing for instant-meeting capability in locations where a regular phone line isn't available (the device uses the cell phone wireless connection). A built-in USB port lets IT managers update the device when new software becomes available.

The SoundStation2W is scheduled to be available by the end of July. Pricing was not announced.

Shaw, who is senior editor of product testing, can be reached at kshaw@nww.com.

The SoundStation2W conference phone system lets you use bridges without relying on phone cords.

When taking your company wireless, foresight is 20/20.

HP can help you predict the business benefits of a large-scale wireless solution without large-scale risks. When you envision your ideal enterprise-wide wireless solution, what do you see? No doubt security, manageability, scalability and flexibility jump immediately into focus. HP can now offer you a glimpse into your wireless future by helping you develop a wireless pilot designed for your business. Our service professionals will help you build an end-to-end, secure wireless network using HP open-standards technologies. These work in conjunction with a wide range of tested, best-of-breed solutions from our strategic software partners, so you are not confined by a limited selection of proprietary products. HP pilots offer a unique opportunity to tally the business benefits of a well-planned wireless network before you move to a full-scale implementation. And of course, we'll provide a wealth of choices, so you'll be assured your pilot is a perfect fit for your business. Demand confidence in wireless technologies. Demand proven cost-efficiency. Demand HP.

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ON TECHNOLOGY

Neal Weinberg

A different take on utility computing

It's refreshing when an analyst, or in this case a group of analysts, decides not to follow the herd, as was the case earlier this month at IDC's annual IT industry briefing.

As you undoubtedly know by now, utility computing is the buzzword of the day. According to the hype, the future is all about autonomic, grid-based, on-demand, pay-as-you-go, adaptive computing environments.

But the analysts at IDC aren't jumping into that virtual pool just yet. Using market data and survey results as the foundation for their analysis, Crawford Del Prete, Vernon Turner and Mark Melenovsky have come up with an alternative vision for how this whole utility computing thing might shake out.

First, they predict that spending on new servers will grow slowly through 2008, only a 3% compound annual growth rate over five years. Even so, technological advances are bringing customers more bang for their buck. That means if you're running a data center, processing power isn't your big problem; you'll have plenty of that.

Your big problem is managing all those boxes. IDC predicts that spending on new servers will be about $55 billion this year, while spending to manage those servers will be about $95 billion. By 2008, new server spending will have crept past $60 billion, and management costs will have soared to around $140 billion.

Approaching it from a different angle, IDC asked more than 400 customers worldwide to describe what is the most valuable potential benefit of utility computing. The No. 1 answer was lowering IT operating costs.

Which brings us to hardware monitoring and management. IDC breaks down utility computing into three phases: server monitoring and management; automated provisioning; and virtualization and service-level automation.

Over the next few years, customers will address their main concern — high data center management costs — by adopting platform monitoring and management tools. Then they will move into server- and application-level provisioning.

But there won't be much traction for infrastructure virtualization or service-level automation, at least not in the next several years. IDC's alternative vision for utility computing is that many companies might never get to virtualization or service-level automation.

In IDC's "good enough computing" scenario, companies might use a variety of other methods to make sure they have enough data center resources at the ready. Those technologies include server consolidation, clustering, partitioning and 64-bit computing on a platform that takes advantage of things like high-speed interconnects, new chip architectures and blade servers.

— Neal Weinberg
Features editor
nweinberg@nww.com

opinions!

Affording monoculture

In Mark Gibbs' Backspin column "Affording monoculture" (www.nwfusion.com, DocFinder: 1727), he makes incorrect comparisons in his cultural infrastructure metaphor. For example, if the railroads became a cultural infrastucture, it was the standards the railroads were based on that were important, not any particular locomotive. It's the same with computing today. Every common thing we do with computers (e-mail, browsing, back-end databases) can be done perfectly well without Windows. Windows is like a locomotive, not a railroad.

Should it be regulated? Can we trust the government to make it secure? Apparently not. But ISPs disconnecting virus-spewing hosts may be the answer.

Robert Jones
Sunnyvale, Calif.

According to the U.K. security consultancy mi2g, 80% of the successful hacks on Internet servers in January 2004 were against Linux servers. So it appears that in trying to escape from one monoculture, we run the risk of replacing it with another that is even less secure. Do you want the devil you know or the devil you don't know?

Chris Boucher
Senior network engineer
Alaska Fisheries Science Center
Seattle

I liked Mark Gibbs' comparison of the Irish Potato Famine to the monoculture of the computing environment today. But he may have oversimplified the solution to problems in the computing world by saying it could be similar to the solution of the famine.

In farming, whether it is potatoes or corn, the marketplace will dictate what farmers spend their resources on. If consumers love one style of potato over another, then that potato will tend to be produced more by the farming community. If the consumer is relatively indifferent, farmers will try to produce the cheaper and more resilient strain of potato. In either case, it is not difficult for the marketplace to accept diversity in potatoes.

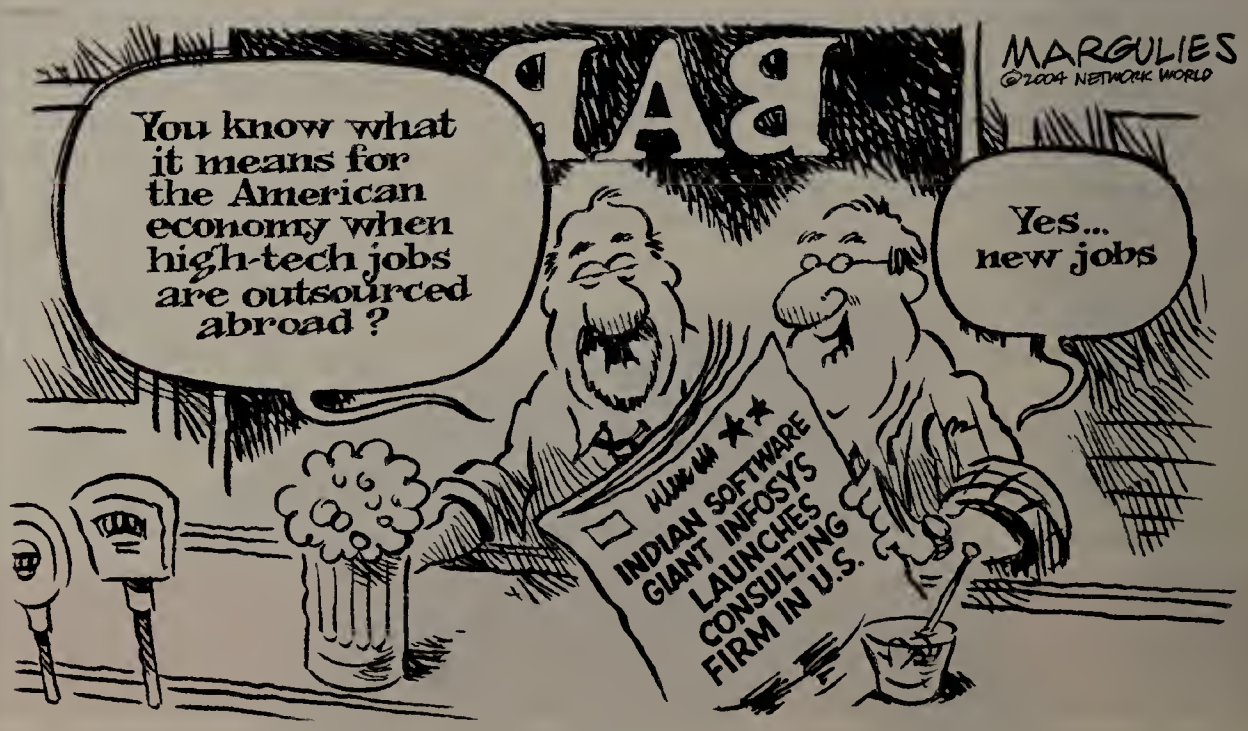
In the corporate IT world, diversity is not the answer, and you will not find seasoned IT shops implementing this as a solution. Instead, they will continue to adopt a platform that makes doing business simpler, easier and cheaper. This platform has been Microsoft on the desktop and Unix, Novell and Microsoft on the server, for years. Microsoft has continued to increase its market share in the server arena and now is the largest single vendor on the server and desktop. Why? Because it builds applications and operating systems that work better together across many different IT systems than anyone else. Linux, Unix and Macintosh will not be able to change this because they don't have the application-integration capabilities that Microsoft has created. When they do, corporate America will start to use more of those systems, but even then they will not be mixed and matched because it is too difficult to support.

The solution is for companies to implement the type of security that they should have implemented years ago. The virus and worm outbreaks did not affect my clients that had implemented robust antiviral solutions, perimeter security technologies and content-scanning technologies before the outbreaks. Microsoft and its security holes weren't to blame. The success of Outlook and Office wasn't to blame. The blame was and will remain with corporate IT policies, security strategies, IT budgets and poor planning. When management supports the IT folks and when the IT folks implement the correct policies and technologies, then disasters can be avoided.

Charles Reid
Los Angeles

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

More online! www.nwfusion.com Find out what readers are saying about these and other topics. **DocFinder: 1725**



BOTTOM LINE

Joel Snyder

Testing shows VoIP a big winner

H.323 is dead. Oh, man, is it dead!

I've just spent the last two weeks doing interoperability testing of VoIP equipment for NetWorld+Interop. You can get the full results next month in Las Vegas at the show or in the May 10 issue of *Network World*, but here are some quick observations to whet your appetite:

H.323 is dead. Oh, man, is it dead! In past years, we've struggled to get H.323 devices to interoperate. They don't do it well and, what's worse, debugging is a total pain. Not so with Session Initiation Protocol (SIP)-controlled telephony. We had incredibly good basic interoperability in just minutes between SIP phones. When we wanted to debug problems, having all the control messages show up in plain text made it easier than H.323 ever was. For debugging, we used ClearSight Networks' VoIP analyzer as well as WildPackets' EtherPeek NX, but rarely needed the power and advanced features of either tool.

If you want to do a single-vendor VoIP telephony deployment, you don't care what protocol is underneath it all. Go ahead and get whatever makes sense from Avaya, Cisco, Nortel or your favorite vendor. But if you want to go for massive interoperability, mixing and matching vendors, phones and equipment, then SIP is the only way to go.

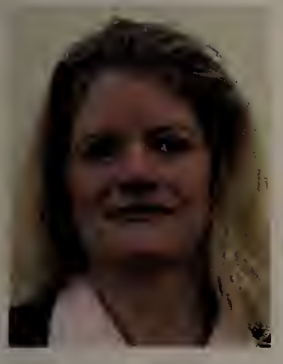
Not all phones are created equal. In the network world, we've become accustomed to treating equipment as a commodity. You can argue the fine points forever, but when it comes to most companies, it often doesn't matter what brand of network interface card, switch or server you buy. Not so with phones. We saw tremendous difference in the voice quality and performance across different products. Managing jitter across the network, encoding and decoding speech, and just sounding good or lousy — devices were all across the map. There is definitely a human factor involved with phones that's going to be unfamiliar to most IT people.

We found lots of variance in configurability and flexibility. You can tell the maturity of a product by how many knobs it has on it. Newly released, bargain-basement devices let you get on the network and little else. The battle-scarred veterans have 50 or 100 settings to tune the device for optimum performance in your network. The nice thing about SIP was that even without tuning, we had great interoperability results.

Getting started is easy. You might not want to run your company on a piece of freeware that you drop on a Linux box (or maybe you do), but you can sure get started with SIP that way. I've struggled to make open source and commercial H.323 work, but I've never seen anything as easy as the open source product SIP Express Router from iptel.org, with Digium's Asterisk a close second. Our team had both products installed and routing calls before lunchtime. Throw in a couple of inexpensive phones, such as the $75 Grandstream BudgeTone, and you're doing basic IP telephony for almost nothing.

So what are you waiting for? It's time to learn about IP telephony!

Snyder, a Network World Test Alliance partner, is a senior partner at Opus One in Tucson, Ariz. He can be reached at Joel.Snyder@opus1.com.



WORKING SMARTER

Martha Young

Virtualizing does not mean outsourcing

There is a widespread misconception that virtualizing business processes is the same as outsourcing.

The idea of companies virtualizing their business processes is catching on in the IT market. But there is a widespread misconception that virtualizing business processes is the same as outsourcing.

A virtual business process is defined as one that leverages an intelligent networked infrastructure to reduce costs, improve efficiencies and focus on the core business. An intelligent networked infrastructure involves more than just a collection of Layer 3 to Layer 7 switches, load balanced servers and distributed storage.

An intelligent networked infrastructure is one that is designed specifically to support clearly defined business objectives. This means that the applications, users and activities using the network all add specific value to the company. To achieve this objective, a company must focus on its strategic core business and determine the optimal method for leveraging its network for competitive advantage. If an application, user or activity is not directly tied to strategic core business and revenue generation, it should not be accessing the network.

The intelligent network is built on a foundation of policy management, security, application and intellectual property access controls, and quality-of-service delivery. These tools engage the total network 100% of the time, whether the network is in one building or spread across the globe. The intelligent network lets users access the resources they need to do their jobs any time, anywhere. The management and maintenance of the intelligent network is also virtualized, letting the support team perform their functions any time, anywhere.

Most businesses have started down the path of virtualization without realizing it. For example, e-mail access is ubiquitous. Users can access their e-mail from home, desk or the road using a variety of methods. Companies have recognized how important e-mail is to driving business and have implemented the application, security and user-access methods necessary for any time, anywhere access.

One benefit of moving toward virtualization is that it can be implemented incrementally. The focus might be on a specific department, such as engineering, which needs enhanced security as well as improved throughput. In this model, virtualization would be a vertical implementation, starting with a review of the physical level and wrapping up with identifying the core applications needed within that group. By applying policy to the engineering team, access to the corporate network essentially becomes a virtual LAN, allowing only approved users and applications access to the resources and intellectual property associated with the engineering group. In blocking unapproved applications, bandwidth as well as infrastructure resources such as CPU cycles and throughput are recaptured for the benefit of the team. With this knowledge, any additional resources needed, such as storage or bandwidth, can be justified in terms of measurable benefit.

The next step in virtualizing the engineering team would support access to the intellectual property from anywhere on the globe. As an engineer connects to company resources through a high-speed link, wired or wireless, he would be able to access everything needed to perform his job, but be contained to the assets necessary to his specific role. An intelligent network would not permit the engineer to access human resources, sales and marketing or any other group's assets.

The next step, then, would be to ask if paying for office space to house the engineering team in one location is the best use of company dollars. "Probably not" would be the correct answer. The dollars spent on leasing and maintaining real estate would be better used to build and support the intelligent infrastructure needed to support the best engineering minds around the globe. As a business you want the engineers' brains; there is no need to acquire their bodies, too.

Outsourcing a process only shifts responsibility for supporting a particular activity. Virtualization emphasizes the use of an intelligent networked infrastructure to enhance the business' competitive position. It forces the decision makers to focus on the core business, and the applications and processes that drive the growth of business.

Young is president of Nova Amber, a business consulting firm, and co-author of The Case for Virtual Business Processes. *She can be reached at myoung@novaamber.com.*

COMPANIES THAT WERE JUST IDEAS YESTERDAY RUN SAP

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Our 10th annual look at the biggest companies in networking

Network World 200

FROM THE EDITOR

THESE DAYS, network vendors are tripping over themselves to show you that they operate by the highest ethical standards. Their efforts include such practices as appointing executive-level ethics officers and engaging in ethics training programs for all employees (see related story, page 72). But simply instituting business-conduct best practices might not be enough. Vendors need to be able to measure the effectiveness of those programs.

Enter the Ethics Officer Association (EOA) and its plan to create an international standard for a business-conduct management system (BCMS). The EOA, a professional group for managers of ethics, compliance and business-conduct programs, has three goals for such a standard, says Lee Essrig, the group's director of global initiatives. These are:

- Provide a practical means for companies of any size, in any industry and in any part of the world to integrate business ethics into their operations.
- Recommend best practices for business conduct.
- Enable companies to measure the effectiveness of their programs.

The 12-year-old EOA, which has seen its membership increase 25% in the past three years, says it hopes to get the International Organization for Standardization (ISO) to develop its BCMS as a "guideline standard." Such a standard would provide recommendations rather than specify best practices. Already, the ANSI International Committee has proposed that ISO develop a BCMS guidelines-based standard. If ISO agrees and begins work this year, such a standard could be available by 2007, Essrig says.

A good BCMS guideline standard would have elements common to ISO quality and environmental management system standards and incorporate emerging best practices, Essrig says. For example, a good BCMS would have demonstrated commitment from executive management; designation of a high-level person responsible for business conduct; confidential mechanisms for reporting misconduct; and regular reporting for review to the board of directors. As Essrig says, "If a company can say its BCMS meets an ISO standard — well, that means something in the business world."

Should this come to pass, I'd advocate making BCMS compliance a checklist item on the Network World 200.

— Beth Schultz
Editor, Signature Series
bschultz@nww.com

Signature SIGN OFF

The Network World 200 online

Visit the Network World 200 portal, at www.nwfusion.com/nw200/2004 for:

- More details on every Network World 200 company.
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- Links to other resources that can help you better understand your network vendors.

The Network World 200 Issue is one of six bimonthly issues providing insights, opinions and information on the biggest trends shaping the networked world. Look for the Job Issue, all about your job, salary, future and free time, coming July 26.

THE Signature SERIES

Network World

The NW200 at 10

A DE MAT REIN

■ BY JOHN DIX

Ten years is a long time in this volatile industry. We've seen heady growth, constant realignment and repositioning, a spectacular collapse and now, signs of resurrection?

By some accounts, we have turned the corner.

After the Network World 200 posted the first-ever loss of $65 billion in 2001 and followed that with a staggering $155 billion loss in 2002, last year the group bounced back to profitability.

The NW200 — the largest domestic public network companies — posted about $61 billion in profit in 2003. After two years of decline, sales for the group headed back in the right direction, increasing 6% to $818 billion. While respectable, that's well shy of the $909 billion mark the NW200 reached in 2000.

We're not officially out of the woods yet, but other positive signs floated to the surface in this, our 10th annual NW200 survey. For one, the number of companies that enjoyed sales growth is edging back toward normal. Until 2001, on average 85% of the NW200 companies would increase sales each year. When the bottom fell out in 2001, only 57% of the companies managed that feat, and in the bleak days of 2002 only 42% saw sales grow. Last year, 68% of NW200 companies sold more goods and services than they did the preceding year.

Another positive sign is that more companies ended the year in the black. In 2001, only 32% of NW200 companies posted profits. Likewise in 2002 when 35% were profitable. Last year that tally jumped to 53%. While a good sign, it is a half-full/half-empty argument: Almost half the companies still lost money in 2003.

The bulk of those were the smaller firms at the lower end of the list, but they had company among the biggest players: Electronic Data Systems lost $1.7 billion last year, Sun ate $1.4 billion, and Level 3 Communications lost $711 million.

Nevertheless, Wall Street is more bullish about the prospects of the NW200, another sign of improving health. The collective market cap of the NW200 grew 34% in 2003 to $1.9 trillion. While that is well off the high of $5 trillion reached in 1999, no one is anxious to see the return of those phantasmagorical days.

On a gloomy note, whatever good news can be gleaned from the NW200 results wasn't reflected in the employment column. Collectively the companies shed some 73,000 jobs last year, with employment dropping 3% to 2.4 million.

10-year view

Interestingly enough, that employment figure isn't remarkably larger than 10 years ago, even though the revenue difference is huge. In 1994, the 200 companies comprising the list employed 2.2 million and generated $483 billion in sales. With only 9% more people in 2003, the NW200 produced 69% more revenue — $818 billion.

Looked at another way, 10 years ago the companies were generating an average of $218,000 per employee, while today's companies crank out $341,000 per employ. Even adjusted for inflation ($218,000 a decade ago equates to about $276,000 today), that's a leap that speaks volumes about silicon advances and the maturation of technology.

Of course, the NW200 has changed significantly over the years, reshaped by numerous boom and bust cycles and the attendant merger-and-acquisition activity. Of companies that made the original list in 1994, only 38 remain, and many of these have changed dramatically.

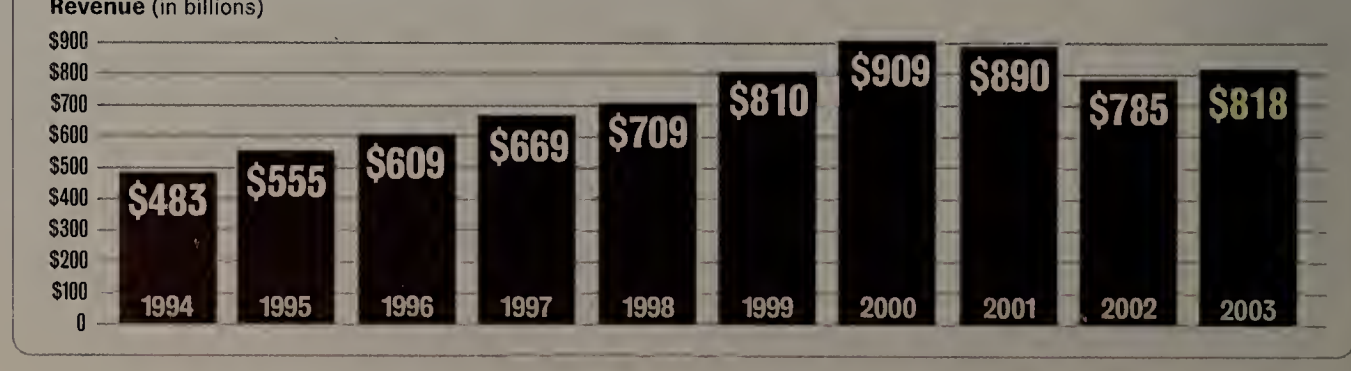
Take IBM. Second on the list in 1994 with $63 billion in sales, mostly from hardware, IBM has ascended to the top slot largely on the back of services. In 10 years, it has added $26 billion in revenue to reach $89 billion. Service revenue passed hardware revenue in 2001 and now dwarfs it, accounting for 48% of sales to hardware's 32%.

HP, once a third the size of IBM, played the merger gambit to achieve growth. "Technology markets are consolidating, with the No. 1 and No. 2 players being best positioned for sustainable market share growth and profitability," HP CEO Carly Fiorina writes in the company's 2003 annual report, reflecting on the 2002 merger with Compaq. A $25 billion company in 1994, HP today is a $75 billion behemoth (based on trailing 12-month [TTM] data; see "How we did it," page 58), second only to IBM on the list.

Time hasn't been so kind to other NW200 stalwarts. AT&T headed the list in '94, a $70 billion powerhouse. Today, after multiple fits, starts and reorganizations, it is

Turning the corner

After two years of retreat, revenue for the NW200 has started to climb back.



ADE OF GROWTH, RATION AND ENTION.

ten

ranked seventh with half of those sales, $35 billion.

Nortel had $8 billion in revenue in '94, nearly quadrupled that to $30 billion in 2000, and today is back close to where it started with sales of $9.8 billion. 3Com is actually smaller today than it was 10 years ago, falling from 49th on the list in 1994 with sales of $827 million to 69th with $735 million (TTM) in revenue. The company topped out at $5.8 billion in 1999.

Key sectors

And to think that in the early '90s 3Com was running neck-and-neck with Cisco. But Cisco was hitting its stride in 1994. The company almost doubled revenue that year to cross the billion-dollar mark for the first time, finishing the year with $1.3 billion in sales. (1994 was also the year Cisco introduced what would go on to become its hugely popular Catalyst switch.)

Now Cisco is 14th on the list and about to cross the $20 billion (TTM) threshold. It is the 800-pound gorilla of the network world, but competition is creeping in from different angles, which might help explain the company's anemic 3% growth (TTM) last year.

Consider competition in high-end routing. Juniper's sales were up 28% last year to $701 million, jumping it five rungs up the list to 70th. While representing only a fraction of Cisco's fiscal 2003 $4.9 billion router business, Cisco has been losing ground. Router sales were down 11% from fiscal '02. With Juniper creeping in at the top of the routing food chain, it is nicely positioned for growth as networks expand.

Expansion is just what Juniper had in mind when it acquired security vendor NetScreen Technologies (104th on the list with sales of $275 million) for $4 billion in stock in February. The company has been fairly mum about its motivation, but the union moves Juniper more squarely into the enterprise business where it will more often butt heads with Cisco.

In switching, Cisco had a commanding 68% market share in 2003, according to Dell'Oro Group. But it also saw revenue slip there, down $55 million from '02. Every other player, however — including 3Com, Enterasys Networks, Extreme Networks, Foundry Networks and HP — each has less than a 5% share. Only Nortel has more, but just a hair: 5.7%.

A few companies are gaining ground. Foundry's switched Ethernet sales grew 17% last year, Dell'Oro says, and HP, which is pushing a low-cost story, saw sales jump 49%.

3Com and Dell hope to mimic HP's low-cost play. 3Com has formed a joint venture with Huawei Technologies

NETGEAR: TOPS IN PRODUCTIVITY

Netgear debuts on the NW200 with distinction as the most productive company.

One quick conversation with Netgear CEO Patrick Lo is all it takes to understand how this small office/home office equipment maker came to carry the NW200 title for most productive, having pulled in $1.4 million per employee in 2003. Lo is enthusiastic and energetic, passionate about changing the way people live and work.

"I would like everybody here to love coming to work everyday because they know they're participating in a mission that's revolutionary," Lo says. "We're promoting the Internet revolution around the world. We're doing something really big for mankind."

That is, Netgear is outfitting homes and small offices with some of the most advanced, easy-to-use and reliable Ethernet switches, broadband routers and wireless LAN switches available for SOHO buyers. Lo says he loves the idea that Netgear equipment is leveling the playing field for small businesses.

Lo's enthusiasm must be contagious. In 2003, Netgear reached $299 million in revenue with an employee count of 207. By comparison, Netgear's archrival Cisco generated about $583,000 in revenue per employee, according to NW200 statistics.

Netgear, No. 100 on the NW200, closely monitors revenue per employee — the amount of revenue should grow hand in hand with the number of employees, Lo says. But operating profit per employee is an important benchmark for the company, too. Netgear, which posted a $13 million profit in 2003, is positioned to achieve operating profit of $120,000 per employee for 2004, Lo says. Lo is gunning for the $160,000 mark, which just happens to be Cisco's benchmark, he says.

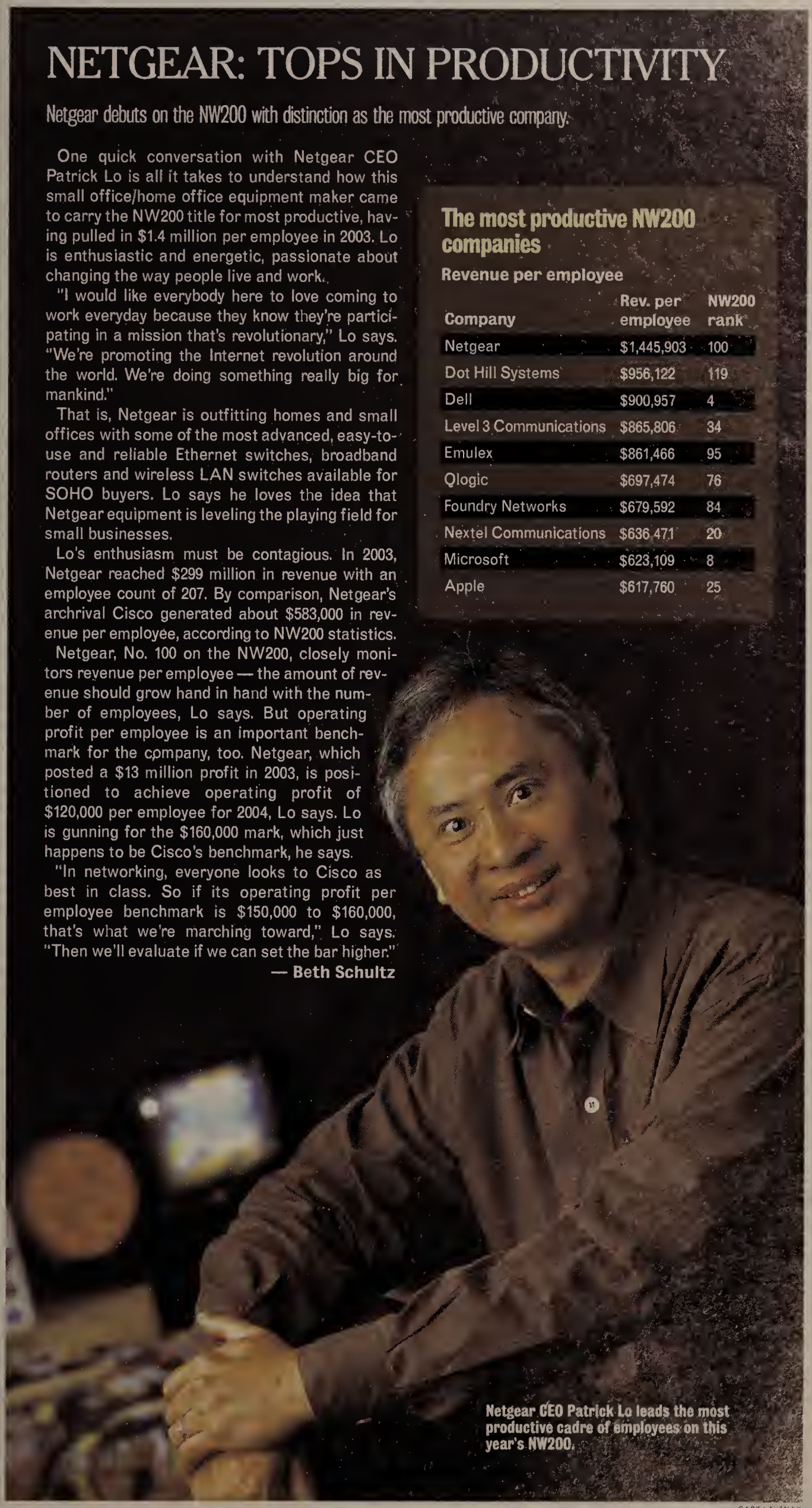
"In networking, everyone looks to Cisco as best in class. So if its operating profit per employee benchmark is $150,000 to $160,000, that's what we're marching toward," Lo says. "Then we'll evaluate if we can set the bar higher."

— Beth Schultz

The most productive NW200 companies

Revenue per employee

Company	Rev. per employee	NW200 rank
Netgear	$1,445,903	100
Dot Hill Systems	$956,122	119
Dell	$900,957	4
Level 3 Communications	$865,806	34
Emulex	$861,466	95
Qlogic	$697,474	76
Foundry Networks	$679,592	84
Nextel Communications	$636,471	20
Microsoft	$623,109	8
Apple	$617,760	25



Netgear CEO Patrick Lo leads the most productive cadre of employees on this year's NW200.

GARY LA FRIAN

that includes research and development and manufacturing, and Dell is looking to do with switching what it has done with PCs — squeeze out costs and sell direct.

But two years' effort on this front hasn't amounted to anything for Dell. IDC says Dell had less than 1% of the switch market revenue in 2003. A Dell quarterly financial press release from February extolled gains in servers, storage and even printers, but didn't once mention switches.

Computing

That hasn't seemed to hamper Dell's growth. Twenty-fifth on the list in 1994 with sales of $2.9 billion, today Dell is fourth, posting sales of $41 billion (TTM).

In the quarter that ended Jan. 30, Dell says server shipments were up 40%, and laptop and desktop shipments were up 40% and 21%, respectively.

Even though Dell generated $33 billion less revenue than HP in the past 12 months, Dell's profit was remarkably similar: $2.6 billion (TTM) vs. HP's $2.7 billion (TTM). Looked at as a percentage of revenue, Dell's profit was 6% vs. HP's 4%, evidence of Dell's ruthless pursuit of cost-cutting.

Big Blue shames Dell and HP in the profit column, exposing the brilliance of IBM's early focus on highly profitable services. IBM generated a 9% return on revenue last year — $7.6 billion — more than twice HP's number.

But one step at a time. HP is just glad to be back in the black after ending 2002 with a $928 million loss associated with the Compaq acquisition. In fiscal '03 (ended Oct. 31), HP returned its core Enterprise Systems Group and its Personal Systems Group to profitability. It also increased its managed services revenue by 22% on a full-year, combined-company basis.

Sun would have been happy with any profit last year. The beleaguered company lost $1.4 billion (TTM) on sales that dropped 8% to $11 billion (TTM), slipping in the process from 17th on the list to 19th. That compares to happier days in 2001 when Sun reported sales of $18 billion.

In a recent interview (www.nwfusion.com, DocFinder: 1724), Sun CEO Scott McNealy said the company has a strong cash position and "a completely re-energized, retooled product line ... I like our position. I like our brand. I like our product line. Our cost structure is a little high, but we're not going to go take a meat cleaver to it and ruin the product calendar or let customer satisfaction suffer."

Software

One of the forces pressuring Sun, of course, is Linux. IBM and HP are backers, Red Hat is growing like a weed, and Novell is suddenly relevant again.

Even with the pall cast over Linux by The SCO Group's litigation against IBM and Linux users, Red Hat found enough new takers to ratchet up sales 56% to $115 million (TTM). It turned a $9 million profit in the process and climbed up the list from 162 to 133.

Novell is looking for a similar bounce, and with good cause. Like 3Com, Novell today is smaller than it was when we first compiled the NW200: $1.1 billion (TTM) today vs. $1.3 billion in '94. But a decade ago Novell was churning out more than $300 million in profits while today it is losing $49 million (TTM).

Its effort to turn the tide is based on Linux. Novell announced in November it would acquire the company SuSE Linux and soon after completing that acquisition in January announced its grand plan: moving up the release of NetWare 7 by a year, shipping it with both the NetWare kernel and SuSE Linux Enterprise Server, and renaming it Open Enterprise Server. The product is supposed to ship by year-end. To assuage concerns about SCO's ongoing legal efforts, Novell announced an indemnification

See NW200, page 60

HOW WE DID IT

Revenue and profit data for companies whose fiscal years ended in November '03, December '03 or January '04 came from 10K statements filed with the Securities and Exchange Commission or, where those were unavailable, directly from the companies.

For companies with fiscal years ending other than November, December or January, we gathered revenue and profit data from their last four quarters of financial reports, taken from 10K and 10Q statements filed to the SEC. In this way, we are comparing the financial results of the same calendar year for all companies, otherwise known as "trailing 12 months."

NW200 companies A to Z

2003 rank	Company
69	3Com
138	Actuate
79	Adaptec
68	ADC Telecommunications
51	Adobe Systems
85	Adtran
149	Agile Software
122	Akamai Technologies
24	Alltel
143	Altiris
46	American Power Conversion
38	Anixter International
25	Apple
112	Ariba
120	Ascential Software
90	Aspect Communications
7	AT&T
16	AT&T Wireless
31	Avaya
193	Avici Systems
99	Avocent
58	BEA Systems
64	Belden
12	BellSouth
174	BindView
181	Blue Coat Systems
197	Blue Martini Software
49	BMC Software
101	Borland Software
150	Broadvision
75	Brocade
163	Brooktrout
152	Captaris
188	Centra Software
80	Check Point
173	Chordiant Software
103	Ciena
14	Cisco
73	Citrix Systems
71	Cognos

2003 rank	Company
15	Comcast
195	Commerce One
74	CommScope
36	Computer Associates
91	Computer Network Technology
18	Computer Sciences
52	Compuware
67	Comverse Technology
139	Concord Communications
172	Corio
96	Corvis
86	Covad
28	Cox Communications
165	Critical Path
192	CyberGuard
148	Datalink
4	Dell
140	Digi International
160	Docucorp
119	Dot Hill Systems
169	DSL Net
144	E.piphany
48	EarthLink
142	EasyLink Services
13	Electronic Data Systems
26	EMC
95	Emulex
83	Enterasys Networks
151	Entrust
124	Epicor Software
132	Equinox
145	Exabyte
199	Extended Systems
93	Extreme Networks
131	F5 Networks
89	FileNet
121	Finisar
186	Forgent Networks
84	Foundry Networks
35	Gateway

2003 rank	Company
180	Globix
39	Harris
2	HP
116	Hummingbird
111	Hypercom
1	IBM
72	Infonet Services
9	Intel
183	Interactive Intelligence
137	Interland
126	Internap Network Services
109	Internet Security Systems
198	Interphase
88	Inter-Tel
123	Intervoice
135	Interwoven
128	iPass
166	j2 Global Communications
70	Juniper
176	Kana Software
191	Keynote Systems
185	Lantronix
94	Lawson Software
34	Level 3 Communications
30	Lexmark International
23	Lucent
92	Macromedia
108	Manugistics Group
189	Marimba
33	Maxtor
82	McData
62	McLeodUSA
77	Mercury Interactive
8	Microsoft
10	Motorola
110	MRV Communications
153	MTI Technology
157	NaviSite
29	NCR
177	Neoware Systems

2003 rank	Company
159	Netegrity
100	Netgear
102	NetIQ
184	NetManage
146	Netopia
171	NetScout Systems
104	NetScreen Technologies
187	NetSolve
55	Network Appliance
50	Network Associates
129	Network Equipment Technologies
20	Nextel Communications
57	Nextel Partners
21	Nortel
179	Novadigm
53	Novell
178	Onyx Software
114	Open Text
182	Opnet Technologies
22	Oracle
164	Packeteer
155	Paradyne Networks
40	PeopleSoft
47	Perot Systems
167	Plumtree Software
81	Polycom
130	Printronix
97	Progress Software
125	Proxim
87	Ptek Holdings
76	Qlogic
32	Qualcomm
63	Quantum
98	Quest Software
17	Qwest
170	Raindance Communications
115	RealNetworks
133	Red Hat
136	Redback Networks
78	Research in Motion

2003 rank	Company
106	RSA Security
175	Safenet
107	Savvis Communications
5	SBC
44	Scientific-Atlanta
162	Secure Computing
127	SeeBeyond Technology
50	Siebel Systems
141	Sierra Wireless
61	Silicon Graphics
147	SonicWall
168	SpectraLink
11	Sprint (consolidated)
113	Standard Microsystems
41	StorageTek
19	Sun
37	SunGard Data Systems
66	Sybase
194	Sycamore Networks
43	Symantec
45	Symbol Technologies
65	Tektronix
59	Tellabs
161	The SCO Group
105	Tibco Software
6	Time Warner
200	Tumbleweed Communications
27	Unisys
56	VeriSign
42	Veritas Software
134	Verity
3	Verizon
190	Visual Networks
156	Vitria Technology
158	WatchGuard Technologies
117	WebEx Communications
118	webMethods
154	Websense
54	XO Communications
196	Zoom Telephonics

IronPort adds identity to SMTP

SMTPi architecture brings identity functions – and greater user control – to the mainstay Internet email protocol.

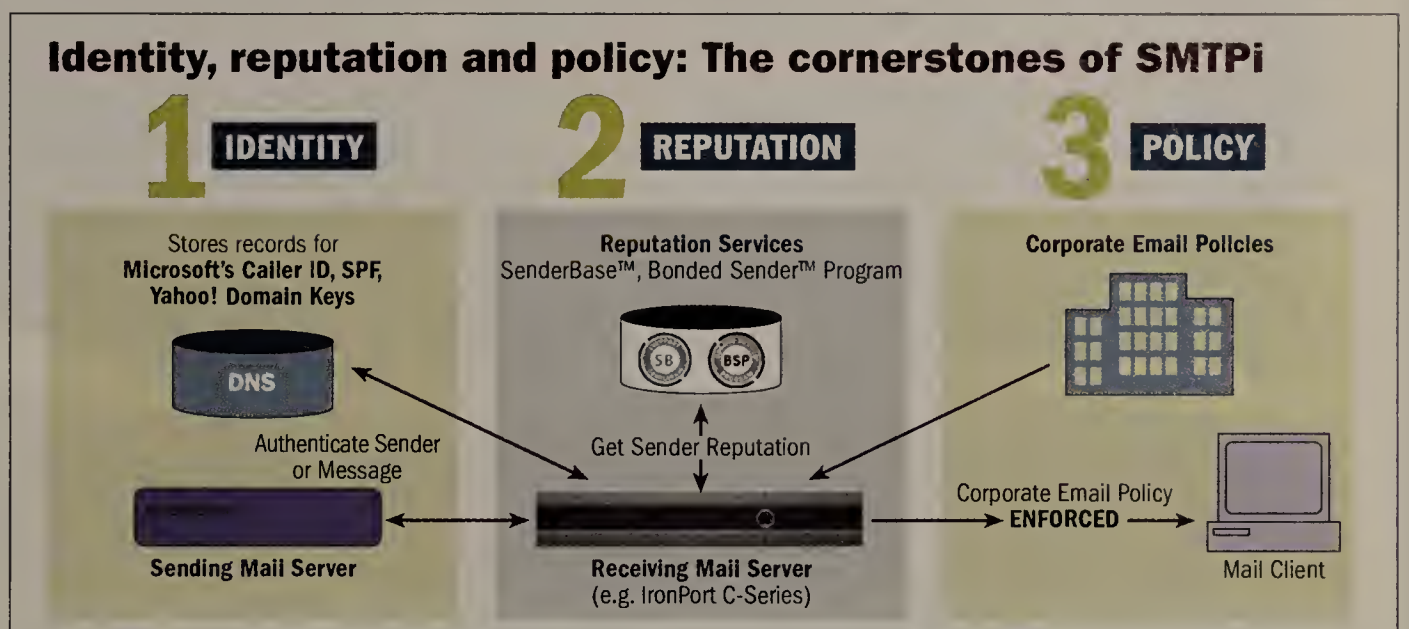
The good thing about email is that it makes it easy for individuals and groups to communicate with one another. Regrettably, that's also the bad thing about email.

Email is increasingly becoming a freeway for spam and, worse, an avenue for fraud, worms, viruses and all manner of security threats. Spam alone is causing widespread mistrust of email, according to a survey conducted in February by the Pew Internet and American Life Project. The survey found that 63% of email users are less trusting of email because of spam, up from 52% in June 2003. In all, 86% of email users reported some level of distress with email and 29% said they have reduced their overall use of email because of spam.

Most organizations don't have the luxury of reducing their use of email; it's simply too important to everyday communications. What they need is a way to bring security and trust to email, to ensure that all mail sent to user in-boxes comes from legitimate senders for a valid purpose.

IronPort Systems, Inc. has devised a way to do just that, with its SMTPi architecture. SMTPi adds a crucial "identity" element to the Simple Mail Transfer Protocol (SMTP), the 20-year-old Internet standard for email delivery and receipt. SMTP was created when the Internet was a more innocent environment, used mainly by academics and researchers. As such it has no mechanism for ensuring that email senders are indeed who they claim to be, which means a mail sender with nefarious objectives can easily hide his true identity behind an address that looks legitimate.

That shortcoming is behind many of the email problems that today's Internet users experience, and it is what IronPort aims to correct with SMTPi. SMTPi is a framework for secure messaging built on three essential components: identity, reputation and policy.



SMTPi establishes email sender accountability by identifying the sender, using sending mail server IP address (and emerging standards, as they become viable), then collecting reputation data on the sender from IronPort's SenderBase database. The receiving mail server then applies the appropriate policy for how the mail should be handled.

Putting the i in SMTPi

The first step in realizing the kind of email accountability that SMTPi seeks is to establish, indisputably, the identity of the email sender.

One way to help establish identity is by verifying the IP address of the sending message transfer agent (MTA), which is far more difficult to forge than the simple return address. That's because SMTP requires a two-way conversation between the sending and receiving MTAs, and altering the sending MTA address makes such a conversation impossible. To provide a more granular level of identification, many email service providers are using IronPort's A-series outbound email gateway appliances to assign unique IP addresses to individual customers. IronPort's SMTPi-enabled email appliances can take advantage of this IP-based identity verification today.

Going forward, SMTPi will incorporate more advanced identity authentication, including emerging systems that allow companies to determine which mail servers are allowed to send email using a particular domain name. Such domain-based systems will help prevent phishing scams intended to get customers to part with sensitive account or personal information.

At least three domain-based authentication systems have been proposed, including Sender Policy Framework (SPF), Microsoft's Caller-ID and Yahoo! Domain Keys. IronPort's SMTPi will be able to support any and all of the standards that are ultimately adopted. Longer term, SMTPi will also be able to support "universal" identity systems that use digital certificates to achieve a high level of accuracy in identifying email senders, even down to the individual level. IronPort is one of several companies working to deliver universal identity techniques, with initial deployments expected in 2005.

IronPort's SenderBase has visibility into a remarkable 25% of the world's traffic and monitors 20 million IP addresses.

Assessing email reputation

Once an email sender has been accurately identified, the next step is to assess his email history or reputation. First-generation identity services amounted to black lists containing the IP addresses of known spammers and white lists of legitimate IP addresses, usually maintained by anti-spam organizations or individuals. In many cases, the lists lack objectivity and it can be difficult to correct errors.

IronPort has created a more objective service, SenderBase, which acts like a credit reporting system for email senders. SenderBase monitors various factors to assess the reputation of a sender, including global sending volume, complaint levels, 'spamtrap' accounts, whether a sender's DNS resolves properly and accepts return mail, country of origin, blacklist information, open proxy status and other parameters. Today, SenderBase has visibility into a remarkable 25% of the world's email traffic and monitors 20 million IP addresses.

IronPort's SMTPi-enabled email gateway appliances have SenderBase data built in, but the reputation database is also available as a service to users of other email gateways (www.senderbase.org). In either case, SenderBase renders a statistical score, the SenderBase Reputation Score, which provides an assessment of the email sender's reliability.

Policy-based handling

The SenderBase Reputation Score enables email administrators to create policies for intelligently handling incoming mail. Policies may dictate that all known bad mail be deleted while known good mail is routed around spam filters to reduce false positives. Unknown, unproven messages may then be sent through highly sensitive spam filters; since not all email is running through these filters, the risk of false positives is much lower.

SMTPi provides powerful mail handling when combined with the threat prevention, content scanning, Brightmail-based spam detection and Sophos anti-virus capabilities in the IronPort Messaging Gateway Appliance. IronPort is also working to bring SMTPi to the open source community, to bring identity and reputation functions to tools such as Spam Assassin and Sendmail.

More than 500 million messages per day get preferential treatment based on IronPort reputation data. Add yours to the tally and regain control of your email infrastructure.

Learn more about SMTPi and IronPort appliances

Download the white paper, "SMTPi: An email security architecture," as well as data sheets on IronPort's family of Messaging Gateway Appliances.

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NW200

continued from page 58

program to cover copyright infringement claims.

Microsoft already has lost business accounts to Linux and talks about the Linux threat in its 2003 annual report. Competitors "provide customers with open source software at nominal cost and earn revenue on complimentary service and products without having to bear the full costs of [R&D]," the report says.

While Microsoft has vaulted from 23 on the NW200 list in 1994 with $4.6 billion in sales to No. 8 with $34 billion (TTM), it is clear the going is getting tougher. Five years ago Microsoft generated 39% profit on sales, while last year it only generated 26% (TTM).

But Microsoft knows how to make money better than any other NW200 company. Its $8.9 billion (TTM) in profits leads the NW200. Although, $55 billion smaller than IBM, Microsoft generated $1.3 billion more in net income.

Telecom

Still missing from the NW200 is MCI, which dropped off the list in 2002 after filing for bankruptcy protection and missed it again in 2003 as it continued sorting out its house.

The company just recently completed auditing its 2002 results. The restatements issued as part of that process show MCI's sales dropping from $39 billion in 2000, to $38 billion in 2001 and $32 billion in 2002. Net losses were $49 billion, $16 billion and $9.2 billion, respectively.

For 2003, the company has been filing monthly operating reports with the U.S. bankruptcy court. These show a bleak picture. Revenues for the year are down 25% to $24 billion and losses for the year stand at $58 million. MCI emerged from bankruptcy last week. Clearly, MCI has its work cut out for it in terms of winning back customers.

Now consider the big kahuna of telecom, Verizon, third on the list with sales of $68 billion. Besides being the largest company, it is the nation's largest wireless carrier, with wireless accounting for 33% of revenue.

Verizon is launching next-generation data services that support speeds of 300K to 500K bit/sec. To attract more business customers, Verizon is building out its national fiber network in a program called Enterprise Advance. This program is expanding the "reach of existing products — such as long-distance, data, fiber rings and optical transport" and serving as a platform for new IP-based services such as VoIP and VPNs.

It also is having success bundling services, with 48% of its residential customers buying local service in combination with either long-distance, DSL or both. The company says it has 2.3 million broadband customers and "long-distance is now a $2 billion business, up almost 20% for the year."

The world has changed.

Speculation is still rife that additional telecom consolidation is in the offing, which will perhaps further reduce the number of companies that can claim they have graced the NW200 since its inception.

But the NW200 beat will go on. ■

CORVIS RETURNS TO THE NW200 AS FASTEST GROWER

Flagging revenue bumped Corvis from the 2002 NW200 list, but the optical gear vendor acquires its way back on — and becomes the fastest-growing company in 2003.

Last February, beleaguered optical network vendor Corvis changed its destiny. Accepting that its high-end carrier gear, although well respected, wasn't its future, Corvis bid to acquire its largest customer, broadband services provider Broadwing. The deal closed in June and led to 1,455% revenue growth.

"Last year at this time, pessimism about telecom occupied the headlines. But at Corvis, we were making plans for the future. We had to make tough — and painful — decisions to refocus and evolve our business," says David Huber, CEO at Corvis, No. 96 on the NW200. In its last appearance on the NW200, in 2001, Corvis' was ranked 126, while that year Broadwing — also knocked off the 2002 list — was at 42.

While Corvis continues to support and sell its all-optical IP switches, its main focus is broadband data services. Under Corvis, Broadwing has moved from being a carriers' carrier with a heavy voice lineup to an enterprise data services provider. with offerings such as frame relay, ATM, Internet access and VPNs. With that lineup, Corvis garnered two-thirds of 2003 revenue from the enterprise market, says Andy Backman, vice president of investor relations.

Corvis closed 2003 with $314 million in revenue, up from the $20.2 million posted in 2002. Of that $314 million, $310 million is attributable to Broadwing, just six months under Corvis' wing, Backman says. Not bad, given Corvis only paid $80 million for Broadwing.

On the downside, profitability remained an issue in 2003. Corvis posted a $261 million net loss for the year. However, that roughly halves the $508 million loss the company registered in '02. Corvis has implemented an aggressive access cost-reduction program for the Broadwing business, Backman says. Through strategic investments, Corvis is extending Broadwing's nationwide all-optical IP backbone with an access infrastructure. Already, it has squeezed out between $3 million and $6 million per month in fees by building its own access network. Plus, last month the company bought Focal Communications, a nationwide competitive local exchange carrier, which gave it an access network in 23 top metropolitan markets, he says. The deal is valued at $210 million.

Backman says he wants Corvis to become profitable in 2004 and could perhaps achieve that as early as mid-year. "Last year we made our business stronger to support long-term shareholder value," Huber says. "This year the job of everyone at our company is clear. It is to drive the company to profitability."

— Beth Schultz

CEO David Huber and his company, Corvis, became this year's fastest-growing NW200 company by acquiring its largest customer and shifting its focus to broadband services.

The fastest-growing NW200 companies

Company	Revenue ($M) FY03	'02–'03 revenue % Δ	NW200 rank
Corvis	[illegible]	[illegible]	[illegible]
Dot Hill Systems	187	300%	119
Safenet	[illegible]	[illegible]	175
NetScreen Technologies	275	71%	104
Computer Network Technology	561	[illegible]	91
Research in Motion	472	65%	78
Ascential Software	186	64%	120
Altiris	99	58%	143
DSL.Net	71	[illegible]	169
Red Hat	115	56%	133
Fastest growing companies with revenue over $500 million			
Nextel Partners	1,013	[illegible]	57
Comcast	18,348	47%	15
Level 3 Communications	[illegible]	[illegible]	[illegible]
Juniper	701	28%	70
Symantec	[illegible]	[illegible]	43

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Rank 2003	Rank 2002	Company Name	2003 revenue $M	'02–'03 % Δ	'99–'03 CAGR	2003 profit/loss $M	'02–'03 % Δ	% of rev.	Profit rank	'99–'03 CAGR	2003 market cap $M**	Cash & invest $M	Ticker	Number of employees 2003	'02–'03 % Δ	'99–'03 CAGR	Rev. per employee $M	Year inc.	FY ends
1	1	IBM	89,131	10%	1%	7,583	112%	9%	3	0%	155,700	7,647	IBM	355,167	0%	0%	250,955	1911	Dec
2+	2	HP	74,698	18%+	11%	2,754	n/m	4%	9	-4%	66,010	13,940	HPQ	142,000	1%	11%	526,042	1947	Oct
3	3	Verizon	67,752	1%	3%	3,077	-25%	5%	8	-18%	104,920	2,871	VZ	203,065	-12%	7%	333,647	1983	Dec
4	7	Dell	41,444	17%	10%	2,645	25%	6%	10	10%	84,290	5,152	DELL	46,000	18%	5%	900,957	1984	Jan
5	4	SBC	40,843	-5%	-4%	8,505	50%	21%	2	1%	81,450	5,184	SBC	168,000	-4%	-4%	243,113	1983	Dec
6	5	Time Warner	39,565	6%	47%	2,639	n/m	7%	11	21%	74,270	3,040	TWX	80,000	-12%	46%	494,563	2001	Dec
7	6	AT&T	34,529	-9%	-7%	1,865	n/m	5%	13	-21%	15,590	4,353	T	61,600	-13%	-9%	560,536	1885	Dec
8+	8	Microsoft	34,271	11%	9%	8,878	9%	26%	1	0%	265,870	52,777	MSFT	55,000	9%	12%	623,109	1981	Jun
9	9	Intel	30,141	13%	1%	5,641	81%	19%	4	-5%	171,760	13,539	INTC	79,700	1%	3%	378,181	1968	Dec
10	10	Motorola	27,068	-1%	-4%	893	n/m	3%	19	0%	39,670	8,016	MOT	88,000	-9%	-7%	307,591	1928	Dec
11	11	Sprint (consolidated)	26,197	-2%	5%	1,215	93%	5%	17	n/m	23,185	2,424	FON	66,900	-7%	-3%	391,584	1899	Dec
12	12	BellSouth	22,635	1%	-2%	3,904	195%	17%	5	3%	49,850	4,556	BLS	76,000	-1%	-5%	297,829	1983	Dec
13	13	Electronic Data Systems	21,476	1%	3%	(1,698)	n/m	n/m	200	n/m	9,380	2,313	EDS	132,000	-4%	2%	162,697	1962	Dec
14+	14	Cisco	19,819	3%	6%	3,779	22%	19%	6	9%	154,640	9,380	CSCO	34,000	-6%	10%	582,912	1984	Jul
15	18	Comcast	18,348	47%	24%	3,240	n/m	18%	7	25%	25,490	4,043	CMCSK	68,000	-17%	21%	269,824	2001	Dec
16	15	AT&T Wireless	16,695	7%	17%	442	n/m	3%	23	n/m	36,940	4,541	AWE	31,000	0%	-	538,548	2001	Dec
17	16	Qwest	14,288	-7%	4%	1,521	n/m	11%	15	7%	7,550	1,756	Q	47,000	0%	36%	304,000	1997	Dec
18+	20	Computer Sciences	13,846	23%	11%	492	17%	4%	22	7%	7,750	148	CSC	90,000	34%	12%	153,848	1959	Mar
19+	17	Sun	11,196	-8%	-3%	(1,446)	n/m	n/m	199	n/m	13,380	2,160	SUNW	36,100	-8%	4%	310,139	1982	Jun
20	23	Nextel Communications	10,820	24%	23%	1,537	11%	14%	14	n/m	26,580	1,971	NXTL	17,000	14%	3%	636,471	1987	Dec
21	21	Nortel	9,807	-7%	-13%	732	n/m	7%	20	n/m	23,010	3,994	NT	36,960	u/a	0%	n/m	1895	Dec
22+	22	Oracle	9,709	4%	1%	2,486	22%	26%	12	12%	60,120	8,074	ORCL	40,650	-3%	-1%	238,844	1986	May
23+	19	Lucent	8,654	-20%	-21%	(168)	n/m	n/m	185	n/m	16,950	4,277	LU	34,500	-27%	-26%	250,841	1995	Sep
24	24	Alltel	7,980	12%	7%	1,330	44%	17%	16	11%	15,720	658	AT	19,986	-21%	-4%	399,274	1983	Dec
25+	25	Apple	6,741	15%	0%	140	637%	2%	35	-26%	9,580	4,791	AAPL	10,912	7%	2%	617,760	1977	Sep
26	28	EMC	6,237	15%	-1%	496	n/m	8%	21	-13%	30,880	2,798	EMC	20,000	15%	2%	311,840	1979	Dec
27	26	Unisys	5,911	5%	-5%	259	16%	4%	29	-13%	4,550	636	UIS	37,300	2%	1%	158,477	1986	Dec
28	29	Cox Communications	5,759	14%	19%	(138)	n/m	n/m	180	n/m	18,530	84	COX	22,150	3%	12%	259,995	1962	Dec
29	27	NCR	5,598	0%	-2%	58	n/m	1%	48	-30%	3,950	689	NCR	29,000	-4%	-2%	193,034	1884	Dec
30	31	Lexmark International	4,755	9%	7%	439	20%	9%	24	7%	11,490	745	LXK	11,800	-2%	2%	402,941	1995	Dec
31+	30	Avaya	4,242	-8%	-12%	43	n/m	1%	53	-30%	6,710	1,044	AV	16,900	-10%	-13%	251,006	2000	Sep
32+	35	Qualcomm	4,116	20%	0%	938	103%	23%	18	23%	51,820	5,066	QCOM	7,400	-9%	-5%	556,149	1985	Sep
33	33	Maxtor	4,086	8%	10%	102	n/m	3%	39	n/m	2,210	531	MXO	13,550	9%	15%	301,579	1982	Dec
34	34	Level 3 Communications	4,026	29%	51%	(711)	n/m	n/m	198	n/m	2,610	1,171	LVLT	4,650	-26%	-10%	865,806	1985	Dec
35	32	Gateway	3,402	-18%	-18%	(515)	n/m	n/m	197	n/m	1,720	1,089	GTW	7,407	-36%	-19%	459,349	1985	Dec
36+	36	Computer Associates	3,291	7%	-10%	(161)	n/m	n/m	183	n/m	15,060	1,352	CA	16,000	-4%	2%	205,688	1974	Mar
37	37	SunGard Data Systems	2,955	14%	15%	370	14%	13%	25	27%	7,920	479	SDS	10,000	14%	8%	295,530	1982	Dec
38	38	Anixter International	2,625	4%	-1%	42	-3%	2%	54	-20%	1,020	101	AXE	5,000	0%	-1%	525,040	1957	Dec
39+	41	Harris	2,286	17%	5%	82	-3%	4%	43	n/m	3,070	516	HRS	10,200	5%	-1%	224,157	1926	Jun
40	40	PeopleSoft	2,267	16%	9%	85	-53%	4%	41	n/m	6,650	1,401	PSFT	12,163	47%	12%	186,385	1987	Dec
41	39	StorageTek	2,183	7%	-2%	149	35%	7%	33	n/m	3,110	1,016	STK	7,100	0%	-4%	307,408	1969	Dec
42	45	Veritas Software	1,771	18%	24%	274	378%	15%	27	n/m	12,040	2,504	VRTS	6,517	15%	47%	271,766	1989	Dec
43+	58	Symantec	1,704	28%	19%	322	74%	19%	26	14%	13,320	2,269	SYMC	4,300	10%	12%	396,207	1982	Mar
44+	43	Scientific-Atlanta	1,599	6%	3%	168	209%	10%	32	6%	4,760	1,097	SFA	7,045	20%	2%	226,974	1951	Jun
45	50	Symbol Technologies	1,530	9%	7%	3	-	0%	99	n/m	3,070	150	SBL	5,300	-7%	7%	288,732	1975	Dec
46	52	American Power Conversion	1,465	13%	2%	177	116%	12%	31	-3%	4,330	748	APCC	6,365	17%	1%	230,134	1981	Dec
47	49	Perot Systems	1,461	10%	5%	3	-97%	0%	101	-49%	1,470	161	PER	13,500	48%	14%	108,207	1988	Dec
48	47	EarthLink	1,402	3%	16%	(62)	n/m	n/m	170	n/m	1,360	359	ELNK	3,335	-35%	-7%	420,360	1994	Dec
49+	53	BMC Software	1,399	9%	-3%	(43)	n/m	n/m	158	n/m	4,190	763	BMC	6,861	8%	7%	203,935	1988	Mar
50	44	Siebel Systems	1,354	-17%	10%	(3)	n/m	0%	118	n/m	5,600	2,026	SEBL	4,972	-16%	9%	272,385	1993	Dec
51	55	Adobe Systems	1,295	11%	5%	266	39%	21%	28	2%	9,510	1,097	ADBE	3,517	6%	5%	368,126	1982	Nov
52+	42	Compuware	1,265	-13%	-10%	37	n/m	3%	58	-39%	2,930	542	CPWR	9,356	-8%	-3%	135,158	1973	Mar
53+	56	Novell	1,113	0%	-9%	(49)	n/m	n/m	165	n/m	3,810	605	NOVL	5,734	-12%	0%	194,040	1983	Oct
54		XO Communications	1,110	-12%	32%	(103)	n/m	n/m	175	n/m	730	521	XOCM	5,100	0%	8%	217,742	1994	Dec
55+	68	Network Appliance	1,075	26%	18%	140	137%	13%	34	19%	6,930	778	NTAP	2,345	3%	10%	458,380	1992	Apr
56	54	VeriSign	1,055	-14%	66%	(260)	n/m	n/m	192	n/m	3,820	724	VRSN	2,471	-23%	44%	426,872	1995	Dec
57	71	Nextel Partners	1,019	52%	-50%	(205)	n/m	n/m	189	n/m	2,310	269	NXTP	2,753	16%	39%	370,142	1998	Dec
58	62	BEA Systems	1,012	8%	17%	119	41%	12%	38	n/m	5,040	1,469	BEAS	3,122	2%	10%	324,309	1995	Jan
59	51	Tellabs	980	-26%	-16%	(242)	n/m	n/m	190	n/m	3,590	1,123	TLAB	3,515	-27%	-13%	278,919	1975	Dec
60	63	Network Associates	936	-10%	7%	70	-45%	8%	45	n/m	2,750	508	NET	3,700	-3%	7%	253,054	1997	Dec
61+	48	Silicon Graphics	913	-17%	-19%	(157)	n/m	n/m	181	n/m	536	109	SGI	3,714	-16%	-17%	245,886	1982	Jun
62	61	McLeodUSA	869	28%	10%	(296)	n/m	n/m	194	n/m	262	57	MCLD	3,100	-16%	-18%	280,323	1992	Dec
63+	57	Quantum	838	-3%	0%	(60)	n/m	n/m	167	n/m	693	255	DSS	2,044	-34%	-19%	409,788	1980	Mar
64	67	Belden	827	2%	0%	(61)	n/m	n/m	168	n/m	476	95	BWC	3,900	-17%	-6%	211,928	1902	Dec
65+	65	Tektronix	808	1%	-7%	47	15%	6%	51	0%	2,640	203	TEK	4,142	-4%	-11%	195,134	1946	May
66	66	Sybase	778	-6%	-2%	87	n/m	11%	40	7%	1,960	470	SY	3,660	-7%	-2%	212,596	1984	Dec
67	70	Comverse Technology	766	4%	-3%	(5)	n/m	n/m	123	n/m	3,346	2,198	CMVT	4,789	0%	0%	159,927	1984	Jan

*Trailing 12 mos. **Captured March 19, 2004. +Reflects joint HP/Compaq data beginning Q2 '02.

n/m = Not measurable u/a = Unavailable at press time

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Rank 2003	Rank 2002	Company Name	2003 revenue $M	'02-'03 % Δ	'99-'03 CAGR	2003 profit/loss $M	'02-'03 % Δ	% of rev.	Profit rank	'99-'03 CAGR	2003 market cap $M**	Cash & invest $M	Ticker	Number of employees 2003	'02-'03 % Δ	'99-'03 CAGR	Rev. per employee $M	Year inc.	FY ends
68*	59	ADC Telecommunications	742	-22%	-20%	(38)	n/m	n/m	155	n/m	2,150	750	ADCT	5,700	-25%	-17%	130,123	1953	Oct
69*	46	3Com	735	-36%	-32%	(363)	n/m	n/m	196	n/m	2,560	1,392	COMS	3,300	-6%	-22%	222,809	1979	May
70	75	Juniper	701	28%	47%	39	n/m	6%	56	n/m	9,830	582	JNPR	1,553	1%	36%	451,642	1996	Dec
71*	77	Cognos	645	22%	13%	84	57%	13%	42	8%	2,580	321	COGN	2,926	13%	12%	220,335	1969	Feb
72*	72	Infonet Services	617	-5%	8%	(253)	n/m	n/m	191	n/m	573	411	IN	1,050	7%	39%	587,850	1988	Mar
73	76	Citrix Systems	589	12%	8%	127	35%	22%	37	2%	3,470	612	CTXS	1,885	13%	12%	312,255	1989	Dec
74	73	CommScope	573	-4%	-5%	(71)	n/m	n/m	171	n/m	1,010	206	CTV	4,500	61%	6%	127,400	1997	Dec
75*	74	Brocade	547	-3%	40%	(166)	n/m	n/m	184	n/m	1,820	448	BRCD	1,230	-8%	47%	444,879	1999	Oct
76*	88	Qlogic	516	26%	23%	131	42%	25%	36	23%	3,840	739	QLGC	740	11%	21%	697,474	1992	Mar
77	84	Mercury Interactive	506	27%	22%	42	-36%	8%	55	5%	3,970	706	MERQ	2,322	27%	22%	218,119	1989	Dec
78*	96	Research in Motion	472	65%	44%	(21)	n/m	n/m	138	n/m	8,770	384	RIMM	2,000	3%	47%	235,767	1984	Feb
79*	82	Adaptec	437	6%	-11%	34	n/m	8%	61	-28%	923	745	ADPT	1,527	-28%	-7%	286,327	1981	Mar
80	81	Check Point	433	1%	15%	244	-4%	56%	30	n/m	5,350	1,603	CHKP	u/a	-100%	0%	-	1993	Dec
81	78	Polycom	420	-7%	14%	23	-15%	5%	67	-5%	1,930	228	PLCM	1,183	-7%	18%	355,368	1990	Dec
82	92	McData	419	28%	34%	(43)	n/m	n/m	160	n/m	573	208	MCDTA	4,789	432%	63%	87,463	1982	Jan
83	83	Enterasys Networks	415	-15%	-21%	(113)	n/m	n/m	176	n/m	524	167	ETS	1,400	-14%	-	296,071	1983	Dec
84	95	Foundry Networks	400	33%	25%	75	234%	19%	44	27%	2,270	1,802	FDRY	588	1%	22%	679,592	1996	Dec
85	90	Adtran	397	15%	2%	62	148%	16%	46	4%	2,500	137	ADTN	1,574	2%	2%	252,033	1985	Dec
86		Covad	389	1%	42%	(100)	n/m	n/m	174	n/m	482	114	COVD	1,100	-8%	5%	353,501	1996	Dec
87	91	Ptek Holdings	381	12%	5%	26	1270%	7%	66	n/m	500	25	PTEK	1,973	2%	-4%	193,259	1991	Dec
88	86	Inter-Tel	374	-2%	4%	29	-26%	8%	63	1%	746	175	INTL	1,817	2%	2%	205,724	1969	Dec
89	89	FileNet	365	5%	1%	11	31%	3%	83	-11%	978	236	FILE	1,720	1%	0%	211,919	1982	Dec
90	85	Aspect Communications	364	-8%	-6%	37	n/m	10%	59	n/m	846	164	ASPT	1,291	-7%	-11%	281,834	1985	Dec
91	115	Computer Network Technology	361	71%	23%	(24)	n/m	n/m	142	n/m	215	77	CMNT	1,216	76%	15%	296,774	1983	Jan
92*	93	Macromedia	351	7%	10%	34	n/m	10%	62	46%	1,310	263	MACR	1,085	-23%	14%	323,853	1992	Mar
93*	79	Extreme Networks	343	-17%	15%	(177)	n/m	n/m	188	n/m	780	164	EXTR	890	-10%	29%	385,737	1996	Jun
94*	80	Lawson Software	341	-15%	0%	3	100%	1%	97	n/m	800	223	LWSN	1,675	-14%	6%	203,821	1975	May
95*	104	Emulex	340	19%	27%	44	127%	13%	52	17%	1,750	382	ELX	395	14%	25%	861,466	1979	Jun
96		Corvis	314	1455%	0%	(261)	n/m	n/m	193	n/m	959	284	CORV	1,213	46%	21%	259,121	1997	Dec
97	99	Progress Software	309	13%	1%	27	32%	9%	65	-5%	861	219	PRGS	1,391	8%	0%	222,214	1981	Nov
98	103	Quest Software	304	19%	34%	22	107%	7%	68	45%	1,430	94	QSFT	1,735	-4%	22%	175,389	1987	Dec
99	102	Avocent	304	17%	23%	39	260%	13%	57	13%	1,730	223	AVCT	537	11%	37%	566,480	2000	Dec
100		Netgear	299	26%	22%	13	61%	4%	77	n/m	426	74	NTGR	207	20%	28%	1,445,903	1996	Dec
101	106	Borland Software	295	21%	11%	(41)	n/m	n/m	156	n/m	726	203	BORL	1,358	-16%	13%	217,378	1983	Dec
102*	97	NetIQ	287	-4%	58%	(176)	n/m	n/m	187	n/m	694	339	NTIQ	1,364	9%	59%	210,624	1995	Jun
103*	87	Ciena	279	4%	-12%	(356)	n/m	n/m	195	n/m	2,400	1,054	CIEN	1,816	-14%	-1%	153,676	1992	Oct
104*	130	NetScreen Technologies	275	71%	0%	55	n/m	20%	49	n/m	3,200	379	NSCN	646	31%	-	426,144	1997	Sep
105	98	Tibco Software	264	-3%	22%	11	n/m	4%	80	n/m	1,570	605	TIBX	895	-13%	13%	295,196	1997	Nov
106	110	RSA Security	260	12%	4%	15	n/m	6%	73	-40%	944	207	RSAS	1,049	6%	5%	247,760	1984	Dec
107	109	Savvis Communications	253	7%	60%	(94)	n/m	n/m	173	n/m	216	28	SVVS	993	20%	36%	254,683	1998	Dec
108*	94	Manugistics Group	251	-13%	11%	(158)	n/m	n/m	182	n/m	454	127	MANU	1,326	-4%	8%	189,099	1986	Feb
109	107	Internet Security Systems	246	1%	16%	20	994%	8%	69	21%	846	238	ISSX	1,215	0%	9%	202,305	1994	Dec
110	105	MRV Communications	239	-5%	-4%	(27)	n/m	n/m	145	n/m	324	94	MRVC	1,250	-11%	5%	191,120	1988	Dec
111	100	Hypercom	232	-5%	-1%	11	n/m	5%	81	4%	373	83	HYC	1,059	-25%	-2%	218,602	1978	Dec
112*	111	Ariba	228	-4%	30%	(42)	n/m	n/m	157	n/m	763	123	ARBA	845	1%	17%	269,467	1996	Sep
113*	120	Standard Microsystems	206	41%	5%	19	n/m	9%	70	n/m	450	162	SMSC	499	0%	-1%	413,569	1971	Feb
114*	121	Open Text	203	27%	14%	27	18%	13%	64	-6%	1,160	65	OTEX	1,196	22%	65%	169,664	1991	Jun
115	118	RealNetworks	202	11%	9%	(22)	n/m	n/m	140	n/m	1,030	374	RNWK	740	6%	3%	273,514	1994	Dec
116*	119	Hummingbird	199	10%	1%	0	-91%	0%	105	n/m	375	116	HUMC	1,450	12%	10%	136,901	1984	Sep
117	128	WebEx Communications	189	35%	136%	60	265%	32%	47	n/m	1,180	135	WEBX	1,241	94%	53%	152,538	1995	Dec
118*	117	webMethods	188	-5%	41%	(22)	n/m	n/m	141	n/m	483	122	WEBM	845	-5%	67%	222,264	1996	Mar
119	196	Dot Hill Systems	187	300%	9%	12	n/m	6%	79	n/m	463	192	HILL	196	-1%	-10%	956,122	1999	Dec
120	139	Ascential Software	186	64%	-29%	16	n/m	9%	72	n/m	1,260	516	ASCL	856	34%	-	216,822	1986	Dec
121*	123	Finisar	168	0%	23%	(116)	n/m	n/m	177	n/m	519	227	FNSR	2,040	17%	56%	82,545	2001	Apr
122	125	Akamai Technologies	161	11%	110%	(29)	n/m	n/m	147	n/m	1,840	165	AKAM	535	-6%	3%	301,419	1998	Dec
123*	114	Intervoice	160	10%	-8%	(10)	n/m	n/m	130	n/m	521	39	INTV	719	-25%	0%	222,487	1983	Feb
124	127	Epicor Software	155	8%	-10%	9	n/m	6%	84	n/m	568	39	EPIC	886	25%	-11%	175,395	1987	Dec
125	126	Proxim	149	3%	27%	(127)	n/m	n/m	179	n/m	254	20	PROX	344	-21%	17%	431,686	1979	Dec
126	132	Internap Network Services	139	5%	62%	(33)	n/m	n/m	149	n/m	404	19	IIP	354	11%	3%	391,525		Dec
127	122	SeeBeyond Technology	138	-9%	20%	(28)	n/m	n/m	146	n/m	327	70	SBYN	673	-14%	11%	204,755	1989	Dec
128		iPass	136	47%	57%	14	-53%	10%	75	n/m	711	139	IPAS	344	46%	22%	395,640		Dec
129*	150	Network Equipment Technologies	134	16%	-10%	3	n/m	3%	98	n/m	284	94	NWK	428	-14%	-19%	312,411	1983	Mar
130*	124	Printronix	128	-8%	-7%	2	-33%	1%	103	-32%	82	35	PTNX	852	-8%	-2%	150,569	1974	Mar
131*	144	F5 Networks	125	15%	23%	7	n/m	6%	89	29%	951	138	FFIV	507	9%	22%	246,391	1996	Sep
132	164	Equinox	118	53%	402%	(84)	n/m	n/m	172	n/m	481	73	EQIX	431	-9%	22%	273,647	1998	Dec
133*	162	Red Hat	115	56%	24%	9	n/m	8%	85	n/m	3,370	61	RHAT	566	-11%	35%	203,198	1993	Feb
134*	155	Verity	112	17%	9%	13	40%	12%	76	-3%	489	154	VRTY	438	1%	8%	256,826	1988	May

*Trailing 12 mos. **Captured March 19, 2004.

n/m = Not measurable u/a = Unavailable at press time

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The Network World 200

Network World Signature Series 4.26.04 www.nwfusion.com/nw200/2004

Rank 2003	Rank 2002	Company Name	2003 revenue $M	'02-'03 % Δ	'99-'03 CAGR	2003 profit/loss $M	'02-'03 % Δ	% of rev.	Profit rank	'99-'03 CAGR	2003 market cap $M**	Cash & invest $M	Ticker	Number of employees 2003	'02-'03 % Δ	99-'03 CAGR	Rev. per employee $M	Year inc.	FY ends
135	133	Interwoven	112	-12%	46%	(48)	n/m	n/m	164	n/m	415	141	IWOV	696	14%	28%	160,201	1995	Dec
135	135	Redback Networks	108	-14%	11%	(119)	n/m	n/m	178	n/m	332	21	RBAK	483	-19%	12%	222,567	1996	Dec
137*	148	Interland	106	1%	0%	(168)	n/m	n/m	186	n/m	70	44	INLD	761	2%	-22%	139,346	1995	Aug
138	143	Actuate	104	-4%	17%	(4)	n/m	n/m	121	n/m	208	45	ACTU	535	5%	13%	195,243	1993	Dec
139	154	Concord Communications	104	11%	9%	8	250%	7%	88	4%	282	162	CCRD	461	2%	10%	225,813	1980	Dec
140*	149	Digi International	104	2%	-11%	7	n/m	7%	90	14%	219	61	DGII	358	-12%	-10%	289,682	1985	Sep
141	165	Sierra Wireless	102	32%	33%	2	n/m	2%	102	-6%	793	85	SWIR	240	33%	-	423,750	1993	Dec
142	138	EasyLink Services	101	-11%	51%	51	n/m	51%	50	n/m	66	7	EASY	600	u/a	0%	n/m	1990	Dec
143	179	Altiris	99	58%	95%	14	n/m	14%	74	n/m	651	139	ATRS	600	42%	-	165,565	1996	Dec
144	158	E.piphany	96	15%	38%	(24)	n/m	n/m	143	n/m	552	158	EPNY	428	-18%	9%	224,533	1996	Dec
145	131	Exabyte	96	-28%	-16%	(43)	n/m	n/m	159	n/m	84	7	EXBT	248	-29%	-25%	386,165	1985	Dec
146*	178	Netopia	95	41%	13%	(3)	n/m	n/m	116	n/m	277	26	NTPA	307	-3%	3%	310,433	1986	Sep
147	146	SonicWall	94	-9%	35%	(18)	n/m	n/m	137	n/m	618	244	SNWL	346	1%	37%	272,832	1991	Dec
148	157	Datalink	91	5%	-5%	(5)	n/m	n/m	122	n/m	41	13	DTLK	164	u/a	0%	n/m	1958	Dec
149*	163	Agile Software	88	32%	27%	(25)	n/m	n/m	144	n/m	405	210	AGIL	434	-11%	23%	203,251	1995	Apr
150	137	Broadvision	88	-24%	-5%	(36)	n/m	n/m	151	n/m	204	79	BVSN	367	-18%	-11%	240,054	1993	Dec
151	147	Entrust	88	-14%	1%	(36)	n/m	n/m	152	n/m	268	92	ENTU	506	-28%	-1%	173,715	1996	Dec
152		Captaris	83	17%	-4%	13	n/m	15%	78	-7%	185	70	CAPA	315	-27%	-7%	264,400	1982	Dec
153*	136	MTI Technology	82	-56%	-15%	(3)	n/m	n/m	113	n/m	95	3	MTIC	281	-28%	-13%	291,399	1981	Mar
154	183	Websense	82	34%	57%	17	0%	20%	71	n/m	623	83	WBSN	400	22%	27%	204,250	1994	Dec
155	141	Paradyne Networks	81	-28%	-19%	(12)	n/m	-15%	132	n/m	155	47	PDYN	377	-25%	-15%	215,650	1999	Dec
156	152	Vitria Technology	81	-17%	21%	(31)	n/m	n/m	148	n/m	207	92	VITR	367	-33%	5%	219,891	1994	Dec
157*	186	NaviSite	80	36%	30%	(47)	n/m	n/m	163	n/m	120	8	NAVI	367	85%	13%	218,815	1997	Jul
158	166	WatchGuard Technologies	80	6%	31%	(16)	n/m	n/m	134	n/m	246	79	WGRD	317	-4%	14%	252,839	1996	Dec
159	172	Netegrity	78	13%	43%	(4)	n/m	n/m	120	n/m	290	72	NETE	400	10%	24%	196,000	1986	Dec
160*	169	Docucorp	78	8%	9%	5	1%	7%	92	9%	120	8	DOCC	405	-5%	2%	192,533	1997	Jul
161*	177	The SCO Group	77	29%	31%	5	n/m	6%	95	n/m	125	65	SCOX	300	-12%	23%	257,020	1998	Oct
162	174	Secure Computing	76	23%	28%	8	n/m	11%	86	n/m	502	34	SCUR	374	3%	4%	203,743	1984	Dec
163	168	Brooktrout	75	2%	-10%	1	n/m	1%	104	-50%	239	56	BRKT	317	-7%	-8%	235,647	1984	Dec
164	192	Packeteer	73	32%	32%	11	197%	15%	82	n/m	411	80	PKTR	222	9%	16%	327,477	1996	Dec
165	156	Critical Path	72	-17%	35%	(62)	n/m	n/m	169	n/m	47	19	CPTH	418	-28%	-13%	172,967	1997	Dec
166	194	j2 Global Communications	72	49%	56%	36	150%	50%	60	n/m	467	55	JCOM	175	12%	6%	409,143	1995	Dec
167	159	Plumtree Software	72	-14%	84%	(2)	n/m	n/m	110	n/m	130	68	PLUM	350	19%	18%	204,286	1996	Dec
168	184	SpectraLink	71	17%	12%	8	52%	11%	87	1%	319	52	SLNK	325	8%	4%	219,692	1990	Dec
169	197	OSL Net	71	57%	123%	(35)	n/m	n/m	150	n/m	53	14	DSLN	230	u/a	0%	n/m	1998	Dec
170	185	Raindance Communications	71	16%	99%	4	n/m	5%	96	n/m	150	40	RNDC	244	10%	16%	289,344	1997	Dec
171*	160	NetScout Systems	70	-9%	-3%	(1)	n/m	n/m	108	n/m	215	61	NTCT	344	-3%	10%	202,631	1984	Mar
172	189	Corio	69	22%	64%	(13)	n/m	n/m	133	n/m	192	35	CRIO	350	6%	-5%	196,286	1998	Dec
173	167	Chordiant Software	68	-8%	31%	(16)	n/m	n/m	135	n/m	385	37	CHRD	279	-15%	14%	244,659	1985	Dec
174	173	BindView	68	1%	0%	(4)	n/m	n/m	119	n/m	197	35	BVEW	525	0%	4%	129,143	1990	Dec
175		Safenet	66	105%	44%	(6)	n/m	n/m	125	n/m	888	114	SFNT	238	11%	14%	278,126	1983	Dec
176	161	Kana Software	61	-23%	35%	(21)	n/m	n/m	139	n/m	118	11	KANA	211	-42%	-9%	289,100	1996	Dec
177*		Neoware Systems	60	18%	41%	6	-12%	10%	91	n/m	154	51	NWRE	119	18%	25%	501,067	1995	Jun
178	171	Onyx Software	58	-16%	-1%	(6)	n/m	n/m	126	n/m	45	12	ONXS	330	-18%	-4%	176,970	1994	Dec
179*	181	Novadigm	58	4%	7%	(7)	n/m	n/m	127	n/m	118	22	NVDM	286	-5%	12%	203,962	1962	Mar
180*		Globix	58	-23%	6%	(43)	n/m	n/m	161	n/m	49	20	GBXX	209	-15%	-14%	277,990	1989	Sep
181*	191	Blue Coat Systems	57	26%	24%	(3)	n/m	n/m	115	n/m	486	35	BCSI	195	-18%	9%	290,805	1996	Apr
182*	198	Opnet Technologies	53	16%	25%	5	65%	9%	94	52%	262	79	OPNT	265	-1%	24%	198,181	1986	Mar
183	195	Interactive Intelligence	52	8%	22%	(6)	n/m	n/m	124	n/m	90	15	ININ	350	1%	12%	147,143	1994	Dec
184	175	NetManage	51	-20%	-9%	(3)	n/m	n/m	114	n/m	88	20	NETM	236	-33%	-24%	214,831	1990	Dec
185*	188	Lantronix	49	-5%	4%	(37)	n/m	n/m	154	n/m	71	13	LTRX	181	-21%	6%	269,945	1989	Jun
186*	187	Forgent Networks	48	-2%	-20%	(10)	n/m	n/m	131	n/m	39	25	FORG	98	-45%	-31%	491,500	1985	Jul
187*		NetSolve	48	-4%	6%	(0)	n/m	n/m	106	n/m	114	40	NTSL	305	0%	-	157,846	1987	Mar
188		Centra Software	43	29%	38%	(8)	n/m	n/m	128	n/m	91	29	CTRA	258	-4%	17%	166,826	1995	Dec
189		Marimba	41	16%	5%	3	n/m	n/m	100	n/m	169	53	MRBA	168	-4%	-5%	243,452	1996	Dec
190	182	Visual Networks	39	-36%	-16%	(3)	n/m	n/m	117	n/m	123	17	VNWK	156	-1%	-11%	252,231	1993	Dec
191*	200	Keynote Systems	38	-21%	28%	(2)	n/m	n/m	112	n/m	256	166	KEYN	158	-30%	6%	241,854	1996	Sep
192*		CyberGuard	38	39%	19%	5	95%	13%	93	n/m	229	14	CGFW	134	26%	9%	282,828	1994	Jun
193		Avici Systems	37	24%	0%	(37)	n/m	n/m	153	n/m	158	64	AVCI	201	-13%	-2%	183,905	1996	Dec
194*	176	Sycamore Networks	37	-5%	-5%	(47)	n/m	n/m	162	n/m	1,140	633	SCMR	373	-16%	17%	98,737	1998	Jul
195	145	Commerce One	36	-66%	2%	(58)	n/m	n/m	166	n/m	59	8	CMRC	116	-85%	-28%	312,069	1994	Dec
196		Zoom Telephonics	33	-11%	-12%	(1)	n/m	n/m	107	n/m	31	10	ZDOM	159	-14%	-14%	209,654	1977	Dec
197		Blue Martini Software	33	-3%	24%	(18)	n/m	n/m	136	n/m	62	46	BLUE	210	-18%	-2%	155,238	1998	Dec
198		Interphase	33	29%	-15%	(1)	n/m	n/m	109	n/m	68	19	INPH	151	-3%	-7%	215,232		Dec
199*		Extended Systems	31	30%	-11%	(2)	n/m	n/m	111	n/m	81	9	XTND	221	-6%	-2%	139,353	1984	Jun
200		Tumbleweed Communications	31	20%	15%	(9)	n/m	n/m	129	n/m	306	25	TMWD	250	88%	2%	122,400	1993	Dec

*Trailing 12 mos. **Captured March 19, 2004.

n/m = Not measurable u/a = Unavailable at press time

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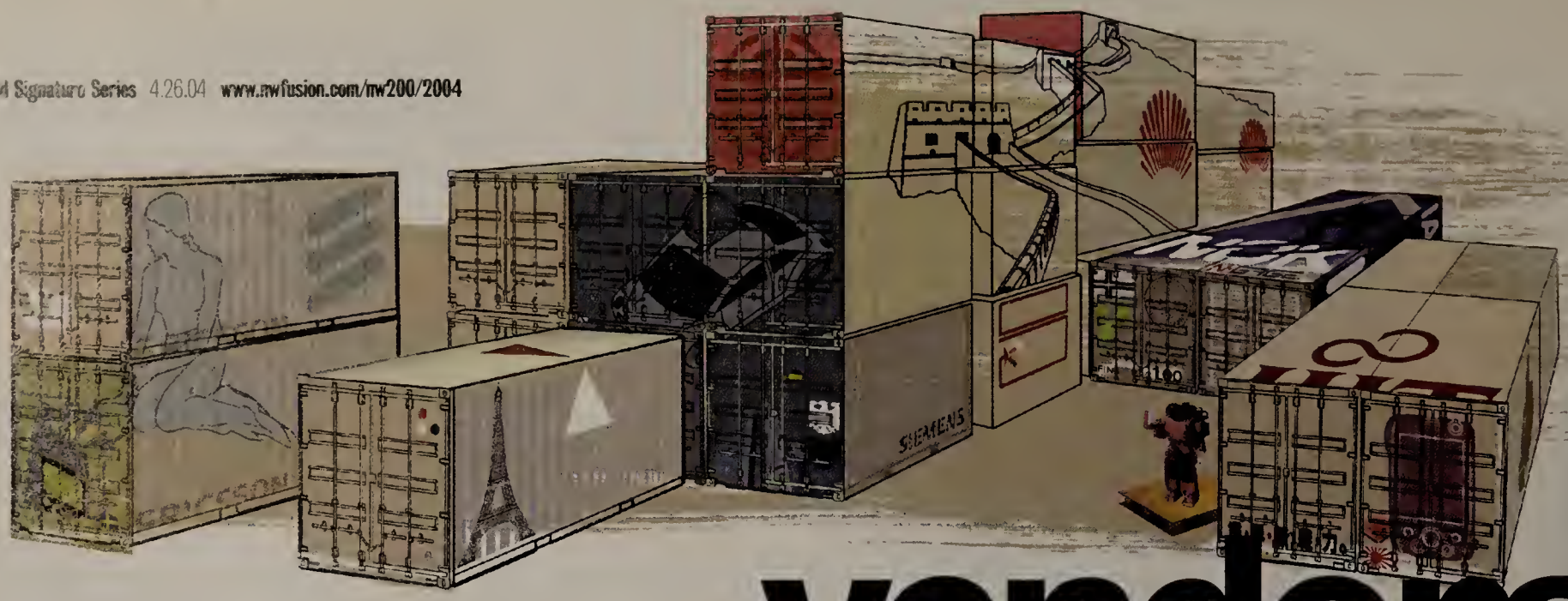

LARS REHNBERG

A look at overseas vendors

INTERNATIONAL VENDORS ENDURED A ROUGH YEAR, BUT SEEM TO HAVE WEATHERED THE WORST.

■ BY JULIE BORT

Several European and Asian vendors have built significant U.S. presences and want even more of your business. But as these vendors pitch their wares, how can you determine their financial viability? Because they're not based in the U.S., we don't include them in the Network World 200, our annual report card on the 200 biggest domestic network companies.

Here we do the due diligence for you on six of the biggest internationally based network gear vendors. For the public companies, we began by culling quarterly and annual reports filed to the U.S. Securities and Exchange Commission. (If a company sells stock in the U.S. as a foreign issuer, it must file financial data with the SEC. But the reporting differs from what is required of domestic companies.) We then sifted through other documents — press statements, for example, in which a company, public or private, might discuss finances. Wherever possible, we attempted to obtain U.S.-specific information, yet this data is entirely dependent on a vendor's willingness to provide it. Some have sporadically reported U.S. figures, others reveal North American data or combine the entire Western Hemisphere into a region called "the Americas." Still others offer no regional data.

The figures presented here are intended to help you gauge a company's financial health, compared with itself a year ago. Conversions to U.S. dollars are estimated, where necessary, for your convenience.

ALCATEL

Paris

Financial highlights

2003 worldwide revenue:	**$15.8 billion* (12.5 billion euros)**
2002 worldwide revenue:	**$20.2 billion (16 billion euros)**
2003 net loss:	**–$2.4 billion (–1.9 billion euros)**
% of sales from North America:	**15% in 2003; 15%, U.S. sales only, in 2002.**
Fiscal year ends:	**December**
Stock symbol:	**ALA (NYSE)**

* Conversions per Dec. 31, 2003, exchange rate of 1 euro = $1.26.

Like nearly all network vendors that earn significant portions of their income from the service provider sector, Alcatel is in the final stages of a multi-year restructuring it hopes will boost its hurting bottom line. Driving this makeover was Alcatel's decision to concentrate more fully on its network business by shedding unrelated units. It has made significant progress, selling off defense electronics, nuclear power and optical component lines, for instance.

The result has been layoffs that reduced U.S. forces by about one-third. Alcatel entered 2003 with about 13,000 U.S. employees out of 76,000 worldwide. Globally, it finished 2003 with 60,000 employees — its announced ultimate head-count goal. The constant restructuring has taken a toll on the company's profits, though. It posted a loss of $2.4 billion (1.9 billion euros) for 2003, according to its SEC 6K filing. This is an improvement over its posted loss of $6 billion (4.8 billion euros) for 2002.

Alcatel's sales for 2003 fell in all areas and all geographic markets. The bright spot was an uptick in fourth-quarter sales over third-quarter sales. Although this improved figure still fell far short of Alcatel's 2002 fourth-quarter sales, it indicates

See Alcatel, page 70

ERICSSON

Stockholm, Sweden

Financial highlights

2003 worldwide revenue:	**$16.4 billion* (117.7 billion SEK)**
2002 worldwide revenue:	**$20.3 billion (145.8 billion SEK)**
2003 net loss:	**–$1.5 billion (–10.8 billion SEK)**
% of sales from U.S.:	**14% in 2003; 15% in 2002.**
Fiscal year ends:	**December**
Stock symbol:	**ERICY (NasdaqNM)**

* Conversions per Dec. 31, 2003, exchange rate of $1 = 7.195 Swedish Kronor.

Ericsson had a tough 2003, but a better-than-expected fourth quarter has management proclaiming that the worst might be over for the wireless infrastructure giant. Ericsson declared a loss of $1.5 billion (10.8 billion Swedish Kronor) for 2003, compared with a loss of $2.6 billion (19 billion SEK) in 2002 — an improvement of 42%, but a loss nonetheless. Net sales for 2003 dropped a painful 19%, with U.S. sales down an insignificant 1%. However, it posted a modest 2003 fourth-quarter profit of $13.9 million (100 million SEK) on sales of $5 billion (36.2 billion SEK). While one quarter does not make a full-fledged return to profitability, analysts were expecting a fourth-quarter loss.

During a conference call with analysts in February, CEO Carl-Henric Svanberg attributed the good news to revived spending by telecom providers, an observation borne out by the results of the NW200 at large and by good fourth quarters posted by other telco vendors. He even hinted that the market for mobile infrastructure gear might now be stabilized, with steady spending on the horizon. Telecom providers remain the bread and butter for Ericsson, and health in that sector is what lets it spend so heavily on research and development — about 20% of sales are invested this way.

See Ericsson, page 70

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FUJITSU

Tokyo

Financial highlights

2002 worldwide revenue: **$38.5 billion* (4.6 trillion yen)**
2001 worldwide revenue: **$42.4 billion (5 trillion yen)**
2002 net loss: **-$1 billion** (-22.1 billion yen)**
% of sales from North America: **6% in 2002; 10% in 2001.**
Fiscal year ends: **March, labeled for the previous calendar year**
Stock symbol: **Not traded in the U.S.**

*Conversions per March 31, 2003, exchange rate of about $1 = ¥120.

**Conversion obtained from vendor documents.

Japan's largest network vendor is nothing short of an IT conglomerate. Almost half of its $38.5 billion (4.6 trillion yen) in 2002 revenue — its most recent fiscal year — was derived from its software and services division (47%). This division includes everything from CRM/ERP installations and systems integration contracts to managed services. Another 38% of revenue came from the platforms division, including servers, mobile and IP network products, service provider equipment, PCs and mobile phones. Its electronic devices division, including components such as semiconductors and LCD panels, generates the remaining 15%.

Still, Fujitsu had a tough fiscal year 2002, which ran April 1, 2002, through March 31, 2003. It blamed its 7% revenue decline on Severe Acute Respiratory Syndrome and the poor U.S. economy made tougher by geopolitical activity in the Middle East. Fujitsu reported that its software and server groups were profitable (although sales dipped). But restructuring costs, expenses to update hard-drive operations and slumping stock valuations created a $1 billion (12.2 billion yen) loss.

Expect Fujitsu to be pitching lots of software and services contracts. They are high margin and the key to profitability, executives say.

HUAWEI TECHNOLOGIES

Shenzhen, China

Financial highlights

2003 worldwide revenue: **$3.8 billion**
2002 worldwide revenue: **$2.7 billion**
2003 net income/profit: **Not available**
% of international sales (outside China): **27% in 2003; 20% in 2002.**
Fiscal year ends: **December**
Stock symbol: **Not publicly traded**

To show its might, private company Huawei Technologies released a statement of its financial results calculated in U.S. dollars. Of course, this statement was voluntary, was unaudited and doesn't necessarily follow the generally accepted accounting principles to which public companies adhere.

Those disclosures aside, as China's largest telecom equipment maker, Huawei remains of interest to U.S. companies for several reasons. Huawei reportedly has a goal of garnering 35% of revenue from markets outside China. It hit the 27% mark in 2003, the company says. Huawei also wants to reach $5 billion in sales by 2004. This has led it to compete aggressively, even offering the kind of cushy vendor-financing not seen since the 1990s, and which most public companies can't match. While sharp competition is good for buyers, it can breed lawsuits. Most notorious was the 2003 lawsuit Cisco filed against Huawei (and embroiling Huawei's U.S. partner 3Com) that claimed intellectual property theft. The parties settled the dispute in October, freeing 3Com to continue selling Huawei routers and switches in the U.S.

Legal threats didn't stop others from partnering with Huawei. In November, Huawei and Microsoft (via Microsoft China), created U-SYS Workspace, a collaboration/communications product that bundles Huawei's hardware and Microsoft Exchange Server. Analysts see the partnership as an effort to gain legitimacy in Western markets.

SIEMENS

Munich

Financial highlights

2003 worldwide revenue: **$86.4 billion* (74.2 billion euros)**
2002 worldwide revenue: **$97.9 billion (84 billion euros)**
2003 net income/profit: **$2.9 billion (2.5 billion euros)**
% of sales from the Americas: **25% in 2003; 29% in 2002.**
Fiscal year ends: **September**
Stock symbol: **SI (NYSE)**

Conversions per Sept. 31, 2003, exchange rate of 1 euro = $1.17.

Siemens is a corporate behemoth that makes just about every kind of technical device. Three of its seven business units are IT-related. 2003 revenue for IT operations was $26 billion (22.3 billion euros), on which it declared a loss of $202 million (173 million euros). This compares with 2002 revenue of $30.9 billion (26.5 billion euros) and a $576 million loss (494 million euros).

Information and Communication Networks (ICN) is the IT unit perhaps of most interest to network executives. Siemens U.S. ICN operations include Siemens Enterprise Networks USA, Siemens Carrier Networks, Efficient Networks (acquired in 2001) and Trango Software (acquired in 2000). The U.S. ICN unit logged 2003 sales of $1.3 billion, and while U.S. profit numbers are not available, the worldwide ICN unit posted a loss of $426 million (366 million euros) overall, on revenue of $8.3 billion (7.1 billion euros). Siemens says that the U.S. and worldwide ICN units were profitable in the fourth quarter of fiscal 2003, and blamed the weak economy for the unit's overall losses.

The U.S. is enormously important to Siemens. It is its second-largest single-country market, after Germany, and headquarters to 11 worldwide business units. Siemens and its subsidiaries employ about 70,000 people in the U.S. and Puerto Rico.

The recent appointment of long-time Siemens executive Andy Mattes as CEO of the U.S. ICN unit shows that Siemens wants to expand its U.S. network business. Mattes wants to make ICN the enterprise choice for convergence and call center wares. ■

Alcatel, continued from page 68

that the telecom industry is beginning to spend. Much of Alcatel's thrust continues to be focused on service providers with wireless, VoIP, IP router and DSL equipment. But its major momentum in the U.S. lately surrounds call-center gear sold by subsidiary Genesys Telecommunications Laboratories (acquired in 2000). It also made waves earlier this year by introducing a Web-services-based, Bluetooth-ready softphone for enterprise VoIP customers.

Ericsson, continued from page 68

Ericsson, too, has undergone major reorganization. Ongoing cuts from its payroll, including 1,800 employees worldwide in 2003, cost it in restructuring charges. It aims for further cuts, reducing its employee roll by about 4,600 in 2004, Svanberg said.

As Ericsson sees smoother times ahead, it will push mobility and convergence products to U.S. corporations, such as its MD110 convergence platform.

NOKIA

Espoo, Finland

Financial highlights

2003 worldwide revenue: **$37.1 billion* (29.5 billion euros)**
2002 worldwide revenue: **$37.8 billion (30 billion euros)**
2003 net income/profit: **$4.5 billion** (3.6 billion euros)**
% of sales from the Americas: **21% in 2003; 22% in 2002.**
Fiscal year ends: **December**
Stock symbol: **NOK (NYSE)**

*Conversions per Dec. 31, 2003, exchange rate of 1 euro = $1.26.

**Conversion obtained from vendor documents.

Nokia is the world's market leader for cell phone handsets and is known in the network industry for its firewall/VPN appliances. Hugely important to the Finnish company, the Americas region accounts for 20% of overall sales.

Nokia wants to parlay its handset position into leadership of next-generation enterprise wireless clients. In pursuit of that, it announced in February the Nokia 9500 Communicator, a multifunction handset geared toward corporations. This came after Nokia's enterprise mobility announcements in 2003 on wireless security, remote content management and access products.

In a January restructuring, Nokia created an enterprise unit devoted to selling a range of products enabling end-to-end enterprise mobility. These include its VPN/firewall, other mobile security products, PBX connectivity suites and cell phone messaging products, for instance.

Worth noting is that Nokia invests heavily in research, with 39% of its employees working in R&D and 12.8% of 2003 net sales (3.8 million euros) devoted to this area.

Sandown & Havoc Industries

From: Steve Orwicz, Data Center Manager
Sent: Tuesday, April 20, 2004 8:25 AM
To: Dave McGuire, CIO
Subject: Yesterday's Glitch

Dear Dave:

I got your message regarding yesterday's application problem. I'm sorry you got an earful from the Chairman of the Board about his inability to access our end-of-year sales figures from the enterprise planning system. Let me explain what happened - and why I doubt it'll happen again.

As you know, we recently set up a server cluster to run our enterprise planning software and e-mail. There are two hosts in this cluster, each outfitted with two Host Bus Adapters (HBAs) to connect it to our Fibre Channel storage area network (SAN). We run a large storage resource management system (SRM), which includes software – let's call it "Dingbat" – to load balance I/O across the two HBAs in each host. In addition to better application performance, load balancing traffic like this lets us take one of our two Fibre Channel switches off-line to perform maintenance without impacting the applications.

This cluster has been running for several weeks. Everything was set up per spec and we had no reason to think that Dingbat wasn't operating properly. We know it was functioning correctly and balancing traffic across the two HBAs and SAN links when the cluster was first built. Unfortunately, the SRM product we use for monitoring the storage gave no indication that anything was amiss.

On a positive note, early this morning we were able to track down the problem with a SAN monitoring and analysis solution, NetWisdom from Finisar, that we bought last week but hadn't yet installed. (I know you know how many balls we're juggling here.) Initially we thought we might have an application issue, but after some investigation we found both the enterprise planning system and e-mail were operating normally.

However, further investigation using NetWisdom uncovered that only one of the two HBAs was in use on host A. We checked host B and found the same thing. NetWisdom's Utilization Monitor indicated that one link from each HBA had 0% utilization, while the other link had utilization in the 60%-80% range. Apparently Dingbat wasn't using the second HBA in these hosts in any way, so only one link from each host was bearing all the traffic. This high volume of traffic on one link is the reason the Chairman was having problems - application response time undoubtedly fell below (possibly way below) our specified service levels.

We spoke with the manufacturer about Dingbat's malfunction. They confirmed nothing had been misconfigured, then found the problem pretty quickly and showed us how to fix it. I'm glad we had NetWisdom to help us pinpoint the problem area so quickly. If we hadn't, the Chairman wouldn't be the only one unhappy. The lack of load balancing could have caused us two severe problems.

First, utilization. High usage of the enterprise planning system alone could fill one SAN link, resulting in degraded application performance for those users and potentially starving e-mail for bandwidth, which would affect the whole business. Second, as I mentioned above, we rely on this dual-path method to allow us to perform maintenance on our switches one at a time. If I had gone through with this maintenance without the information provided by NetWisdom, the planning and/or e-mail apps would have been taken off-line in the process and there would have been a significant risk of data loss, not to mention unplanned application downtime. Believe me, that would have made the Chairman really unhappy!

Anyway, thanks to NetWisdom we found the problem and fixed it before it turned into a disaster. Since we believed that Dingbat was configured and running properly, we wouldn't have suspected it was the problem. We're now using NetWisdom as our primary SAN monitoring tool. My team and I really like it because it looks at the entire exchange across the SAN, from initiator to target and back again, giving us a complete picture of SAN performance. Likewise, because it's not tied to any one component the way our other SAN management tools are, it gives a completely objective view of performance.

And because it sees everything on the SAN fabric all the time, it finds problems that our component-specific management tools miss. I don't need to spell out for you how much money we save by spotting anomalies before they balloon into problems, or finding and fixing problems before they affect large numbers of users. NetWisdom will undoubtedly help us achieve the application service levels we've agreed to. And we can use it to stay on top of changing SAN usage, only deploying additional SAN resources as really needed. So you can see why I don't think we'll be hearing from the Chairman again - at least not regarding a SAN-related problem.

If you have any other questions or concerns, let me know.
Steve

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Ethics under investigation

NETWORK EXECUTIVES DEMAND PROOF THAT VENDORS ADHERE TO THE HIGHEST BUSINESS-CONDUCT STANDARDS.

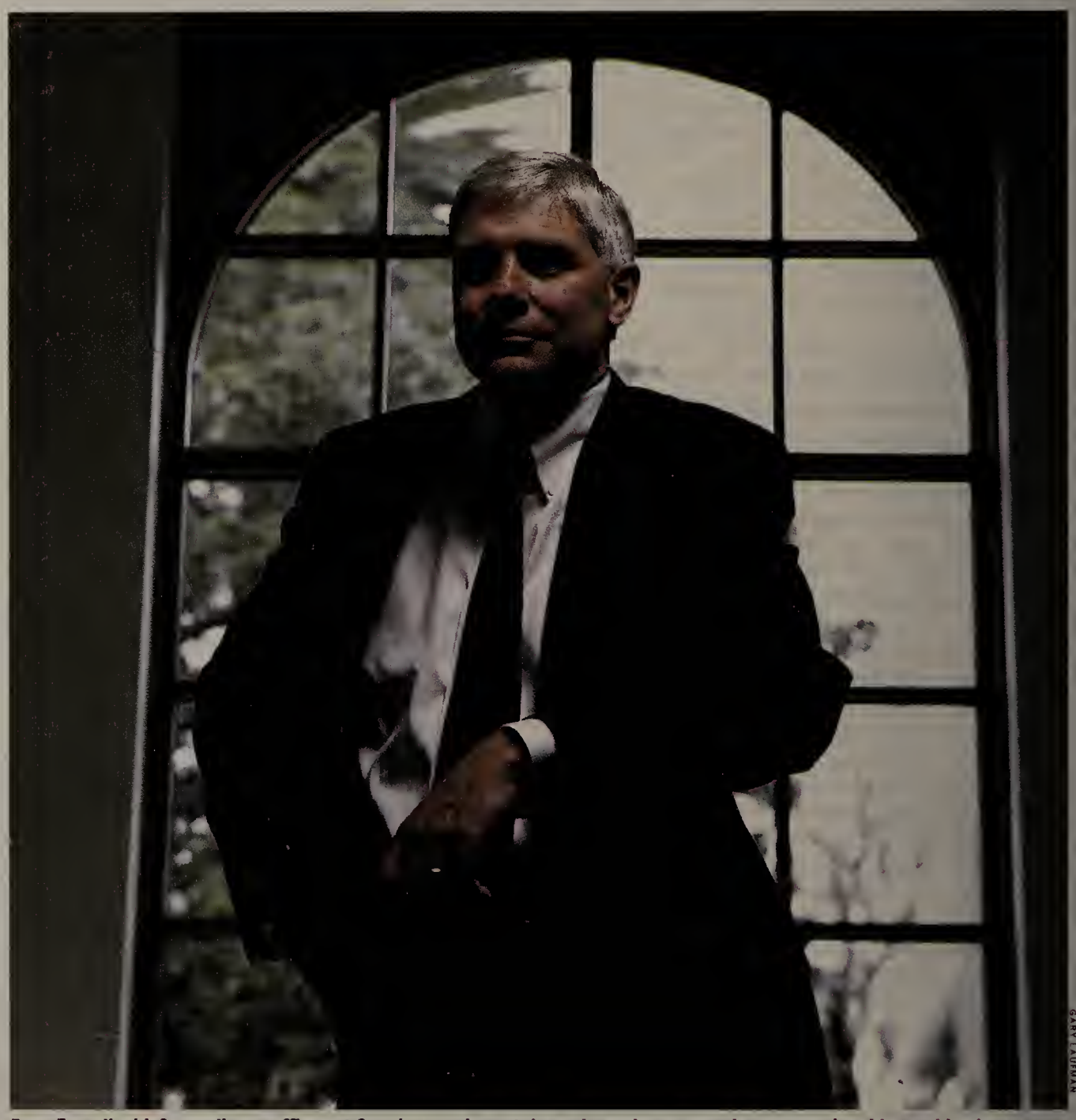
■ BY BETH SCHULTZ

Two years ago, when it came to trusting your vendors, a firm handshake and an honest smile would have been just about enough to seal a network deal. Then in came WorldCom, and out went the trust.

Now network executives are putting the screws to their vendors on ethics, business conduct and compliance — longstanding relationships notwithstanding. They demand proof of honesty and integrity — in writing. That means an RFP today might contain as many questions about business practices as it does about a vendor's technology and service.

Playing the adversary isn't always easy. When you start probing a vendor about how it would handle challenges such as a billing error, employee misconduct, a security breach or records retention, the conversations get tough, says Brian Conlon, CIO at Howrey, Simon, Arnold & White, an international law firm in Washington, D.C. "Vendors sort of look at you like 'What?'" he says.

But with WorldCom ingrained in their minds and company-making deals often on the line, IT executives want proof of their vendors' good ethics practices. "Some vendors initially will say, 'Go to this URL. Everything you need to know is there.' But we know our in-house counsel will want more than that, so we expect signed documentation supporting what a vendor has," Conlon says. "These are the new criteria we're using in the IT world."



GARY LAUFMAN

Dave Farrell, chief compliance officer at Sun, has made certain each employee sees the company's ethics and business-conduct expectations in clear light.

The Sun shines on these ethics

Before awarding Sun an IT infrastructure overhaul project last year, Conlon scrutinized the vendor's business conduct and compliance programs. He got the assurances he wanted: Sun not only has an organizational structure in place for handling business conduct and compliance, but also takes its reputation as an ethical vendor seriously.

Sun has been evolving its ethics and compliance policies over the last dozen years, since publishing its first Standards of Business Conduct policy statement, says Dave Farrell, who authored the 1991 document while an in-house counselor. Farrell has since become chief compliance officer, heading Sun's 3-year-old Business Conduct Office. He reports to the CFO/executive vice president of corporate resources.

Under the Business Conduct Office, Sun has put each of its 35,000 employees worldwide through a basic online ethics training program and requires ongoing topical training. The company recently rolled out a module on how to handle conflicts of interest, and this summer will release an online training program on export compliance, Farrell says. In addition, top executives and some staff members — about 1,200 people — must participate annually in a two-day "boot camp." At the boot camp, they learn about their fiduciary responsibilities and get training on how to be an ethical leader.

Conlon is not alone in thinking Sun's ethics program impressive. Sun is known for its exemplary ethics and business-conduct programs, says Steve Priest, founder of the Ethical Leadership Group, a consulting firm.

Best practices

Of course, exceptional ethics won't ever factor in more highly than technology when it comes to a vendor decision. So if Sun's product choices aren't to your liking, look for business-conduct best practices at your chosen vendor. Ethics experts name four must-haves.

The first is appointment of a top-level executive responsible for ethics, business conduct and compliance. Chief compliance officer is the more traditional version of today's trendy "chief ethics officer" designation.

"A good ethics program starts with a CEO who believes in it — but that's always been the case. One of the changes we've seen recently is in naming a chief ethics officer and having that person report periodically and directly to the audit committee of the board of directors. That's a clear lesson from the past few years," Priest says.

Network World 200 powerhouse Dell last December added an ethics title to its roster. Thurmond Woodard, vice president of global diversity, now is chief ethics officer as well. As part of his new role, he supports the Dell board's audit committee in implementing processes to comply

See Ethics, page 74

Peer-to-peer is clearly a problem.

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Ethics

continued from page 72

with governance requirements.

And, in a well-publicized appointment, former NW200er MCI (ineligible for consideration this year because of its bankruptcy status in 2003), hired Nancy Higgins as its first chief ethics officer. Higgins most recently served as vice president of ethics and business conduct for Lockheed Martin. Before that, she headed Boeing's first company-wide ethics organization. (Companies in the defense industry were the first to adopt formal ethics programs, in the mid-1980s, to comply with federal mandates.)

Other NW200 companies with chief ethics or compliance officers include AT&T, HP, Nortel and Sprint. Nortel was one of the 25 original sponsoring partners of the 12-year-old Ethics Officer Association (EOA), a group of business-conduct executives.

WOODSPHOTOGRAPHY.COM

Brian Conlon, CIO at law firm Howrey, Simon, Arnold & White, looks grimly on vendors that will not fully discuss their ethics, business conduct and compliance programs.

Another best practice is providing employees a way to report suspected wrongdoing confidentially and anonymously. This is not the same as an open-door policy, Priest warns. "Many companies in the '90s prided themselves on having an open door, and that's all they needed. In this environment, that doesn't cut it legally anymore," he says.

Priest recommends delving into how employees perceive a stated open-door policy, especially in light of the goings-on at WorldCom. He says focus group participants often describe their employers' open-door policies as such: "The door is always open — if you don't like the way things are, you can leave at any time."

A third best practice to watch for is how your vendor assesses program effectiveness. Nobody's fooled by check-the-box lists anymore, says Lee Essrig, director of global initiatives at EOA. Toward that end, the EOA is promoting development of an international standard for a business-conduct management system that would, among other goals, let companies measure or benchmark the effectiveness of their programs, Essrig says.

A fourth best practice deals with training. Be sure the highest corporate officers at your vendors receive ethics training regularly. And check to see that all employees are required to participate in training sessions annually. Priest suggests that short annual training sessions are far more effective than a two-day, once-in-an-employee-lifetime ethics crash course.

Note that none of these best practices are particularly profound, Sun's Farrell says. "The devil is in how you live by them," he adds. "You can never just rest and say, 'We're done.'"

And for his part, Conlon easily can justify putting even the most well-respected vendor through the wringer on ethics, business conduct and compliance. "The things we are doing with Sun are not one-offs. It will be our partner for a long time, and we need to make sure it will stay in business," he says. ■

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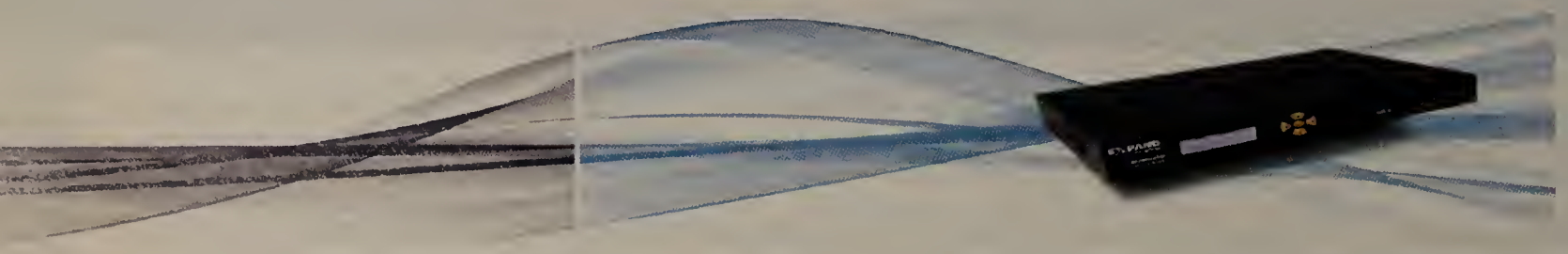

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NetworkWorld 2004 START-UPS TO WATCH

ROD CLARK

THE PICKS, THEIR FORTES

Bluewave Networks:	Real-time route and traffic analytics
Cassatt:	New data center infrastructure software
Cast Iron Systems:	Application integration appliance
Convoq:	Presence-enabled Web conferencing
Deepfile:	Enterprise file management
Mirra:	Media server
PanGo Networks:	Location-based wireless LAN software
Strix Systems:	Wireless LAN hardware
TurnTide:	Anti-spam router
Vontu:	Outbound firewall

■ BY NETWORK WORLD STAFF

Bluewave Networks

Sunnyvale, Calif.

Company name: Founders hope "Bluewave" evokes the same feeling of tranquility you'd get from watching the ocean on a calm day.

How did the company start? CEO Kumar Sripadam and CTO Guna Ramireddy, engineers who worked together at IP equipment vendor Redback Networks, teamed in May 2001 to develop a product that delivers Layer 3 IP data in a meaningful way. Other products, they say, don't provide enough information about the network, where the problem resides and how that problem relates to applications.

Funding: Undisclosed amount of private funding.

CEO: Sripadam, who had been senior technical director for the engineering team that created Redback's first product.

Product: Infrastructure Analytics and Management System (INAMS) software.

Calming network and application performance storms

Why needlessly cobble together route, traffic flow and application performance information from disparate systems? That's the question Bluewave poses to enterprise network executives, offering them its flagship INAMS as an answer.

INAMS combines network topology information with IP traffic flow and routing data with detailed analysis of inter-router application traffic and real-time analysis of application packets, Sripadam says. Through this approach, Bluewave provides more application-specific data and more immediate analysis than competitors such as Ipsum Networks and Packet Design, he says. "We collect data on many different pieces of the network stack, and we can correlate that data in real time to, say, determine if a service degradation is due to a topology change," he says.

INAMS consists of two components. The first is INAMS Sensor, software that can be installed on a server, workstation or packaged with a proprietary appliance. The second is INAMS Console.

Sensors, which are distributed throughout a network, peer logically with routers. They watch traffic and routes, constantly updating a database, and can monitor routing protocols such as Open Shortest Path First, Border Gateway Protocol and Intermediate System-Intermediate System. The software can alert managers when thresholds are missed and create management events when network anomalies occur. Today, the product does not take automated corrective actions, but it will suggest potential fixes.

The INAMS Console runs on a Windows or Unix server and is the central management point for the Sensors. From the console, network managers can get a single view of routing and traffic analytics, and operators can replay routing and traffic events logged over time and correlate application performance problems with, for example, periods of network congestion. Network managers can access the INAMS Console via a secure Web interface.

INAMS became available in February, and the company says to expect a business services module by the beginning of May. Customers can buy INAMS' network modules for routing analytics, traffic analytics or a combination of the two. Pricing for the basic route-analytics features starts at $25,000 and can scale to $100,000 or more depending on customer specifications. Pricing is based on one Sensor and Console.

Bluewave says it has four INAMS customers, including managed service provider ViaNet.

— DENISE DUBIE

Cassatt

San Jose

Company name: Named for impressionist painter Mary Cassatt, the sole American woman who made a name for herself in late 19th century France among peers Claude Monet, Camille Pissarro and Edgar Degas. Like the painter, the software company hopes to break the mold in its endeavors.

How did the company start? Last spring, venture capitalist firm Warburg Pincus asked Bill Coleman, former CEO of BEA Systems, to help investigate a server-clustering company. Coleman thought the technology didn't on its own warrant investment, but thought topping it off with virtual LAN capabilities would make it sell. The more Coleman looked into the idea, the more he wanted to be a part of the company, which launched in September 2003 with him at the helm.

Funding: Coleman won't specify, but reportedly a first round of between $35 million and $50 million that closed last September.

CEO: Coleman, who had been BEA's founding CEO.

Product: Unnamed infrastructure softwar

Painting the new data center's future

Cassatt's marketing spiel uses more than a few buzzwords — autonomic computing, service-oriented architecture and grid computing. But what really interests the software company is the eventual convergence of these technologies.

Cassatt is designing for an IT environment that will emerge over the next decade as more users adopt virtualization technologies, Coleman says. Today, users can begin to scale their IT environments with Linux clusters or blade servers. In a few years, software and hardware will mature enough that utility computing can become practical, he says. The problem is utility computing requires the metering of processing, network and storage capabilities, and the software doesn't exist to do that today, he adds.

"Imagine if we scale the number of hardware components that are operating from a couple of hundred to tens of thousands, and we take the few dozen applications being managed today and break those into tens of thousands of Web services," Coleman says. "If all this is really going to happen, then the world needs an operations system, something that takes on most of the manual operation and the real-time administration of this technology, and takes out the need for a human to be in the loop."

That's what Cassatt intends to deliver with a hardware-, software- and operating-system-agnostic approach. This puts Cassatt in line to complement technology from vendors such as BEA, HP and IBM, Coleman says.

Cassatt operates from three sites: its corporate headquarters in San Jose, where most of the executive team resides; St. Paul, Minn., and Colorado Springs. The St. Paul site is staffed by former employees of Unlimited Scale, which made the Linux-based server-clustering technology that Warburg Pincus first asked Coleman to examine. The Colorado Springs office is staffed by 19 ex-Sun engineers, whom Coleman and company convinced to defect from Sun as a team. The Sun group was working on a remote distributed management console for Sun's N1 initiative, Coleman says. Today, the group is developing Cassatt's management console and management services, while the St. Paul group is developing runtime software.

No Cassatt products are commercially available yet, but a handful of companies are testing early versions. Pilot users come from the financial services and government industries, Coleman says.

A second generation is due this summer, at which time the company plans to announce its first product and the names of its beta customers.

Cassatt's software initially will run on Linux. Cassatt eventually will provide vendor-specific Unix implementations and support for Microsoft platforms.

— ANN BEDNARZ

Cast Iron Systems

Mountain View, Calif.

Company name: Intended to connote simplicity and utility, like the cookware.

How did the company start? Founded in July 2001 by George Scott and Nikhyl Singhal, both formerly of online bartering company WebSwap and application development vendor Borland; and Samir Mitra, formerly of collaboration vendor Zaplet and Sun. The trio's intent was to make the application integration chore less cumbersome.

Funding: $20.3 million, including a $12 million third round that closed in January.

CEO: Fred Meyer, former chief strategy officer at Tibco Software.

Products: Application Router 1000, an application integration appliance.

Application integration via an appliance

The toils of application integration are well documented. Vendors with tools to help solve these integration woes crowd the market, from stalwarts such as IBM, Tibco and webMethods that have message-brokering roots, to relative newcomers like Composite Software, which focuses on data integration, and Grand Central Communications, with its Web services-based delivery model.

Cast Iron differentiates itself with its hardware approach and focus on lightweight integration projects, such as connecting business applications with different protocols and data formats. The Application Router 1000 appliance lets users share data among databases, enterprise applications, XML data sources, legacy systems and flat files.

> "We're about getting data from Point A to Point B — orchestrating it, transforming it and keeping track of it."
>
> **Fred Meyer,** CEO, Cast Iron Systems

"We're about getting data from Point A to Point B — orchestrating it, transforming it and keeping track of it," Meyer says. That's all the majority of integration projects require, he says. Typically, the effort involved in configuring a system to run traditional enterprise application integration (EAI) middleware "completely overwhelms the complexity of the actual integration you're trying to do," he adds.

Cast Iron leaves integration projects that require state management to the heavyweight EAI players — vendors with which Cast Iron might someday partner, Meyer says. That distinction amounts to the difference between transforming customer information stored in one database into a data format that target systems can read and process, and orchestrating a complex transaction that requires each step be executed, validated and documented in association with earlier steps.

The Application Router 1000, a rack-mountable appliance featuring two Ethernet data ports and one management port, runs Cast Iron's Linux-based operating system software. With the Application Router's management console, users can identify internal issues such as a fan that needs repair, and trace where in the network a transaction stalled. The appliance became generally available in July 2003.

The Application Router 2000, due in May, is aimed at companies that want to build networks of integration routers. The upgraded model will offer more sophisticated management and monitoring capabilities, and compression features, Meyer says.

Cast Iron has 14 customers, including British American Tobacco and Solectron. The Application Router 1000 ranges in price from $30,000 to $100,000.

— ANN BEDNARZ

Convoq

Lexington, Mass.

Company name: Convoq plays on the verb "convoke," to convey the idea of presence-based capabilities for convening, or convoking, an online meeting.

How did the company start? CEO Chuck Digate founded Convoq in January 2002, after spending the previous seven years as CEO of MathSoft, maker of calculation management software. His goal was to create an easy-to-use method for real-time collaboration.

Funding: $17.4 million, including a $10 million second round that closed in November 2003.

CEO: Digate, who also founded Beyond and spent four years at Lotus.

Product: Convoq ASAP (As Soon As Present)

Desktop video, Web conferencing lifelines

Convoq offers desktop video and Web conferencing quite possibly the way they were meant to be — from technology and price standpoints.

A user who acts as a moderator or meeting initiator pays an annual fee of $149.95, for unlimited meetings with up to 25 participants. For each additional participant over 25, there is a cost-per-minute charge of 15 cents.

Participants use a Flash-based interface, similar to competitor Userplane, which solves software downloads and firewall issues. The interface pops up after clicking on a "meeting invite" URL sent via instant messaging or e-mail. Convoq hosts the backend.

The company is shattering the Web conferencing price model set by competitors such as WebEx and Microsoft Live Meeting, which charge for each user connected to its service. But even if you had to pay out the bandwidth pipe for this broadband service, the price would be worth it. Convoq understands the concept and value of using presence information as part of an application.

Convoq ASAP integrates with any IM service and aggregates the varied buddy lists into one view. The presence information is then used to gather people into a meeting as soon as they are present online. Presence also helps locate stand-ins for participants who can't make a meeting, and provides "lifelines" — experts who can be brought into a meeting in real time to answer questions. The integrated video adds life to otherwise drab slide-flipping Web conferences, and the range of collaboration tools, including PowerPoint and applications sharing, chat and IM, won't leave users short-changed.

For the savvy, the ASAP desktop Windows software doubles as an IM client, although the company is not marketing it as such. Convoq ASAP, which took two years to develop, shipped in February. As of early spring, Convoq had but one publicly referenced customer, Digilab, which provides equipment and services to physicians and surgeons.

— JOHN FONTANA

Deepfile

Austin, Texas

Company name: Reflects the company's desire to create a deep file metadata repository for content management.

How did the company start? In May 2001, serial entrepreneur Jeff Bone teamed with two collaborators from Clickfeed.com, a news aggregation service he created; plus Rudy Rouhana, founder of Web Taggers, a now-defunct software company; and Jeff Erramouspe, who had been a fellow at Austin Venture Labs; to create an enterprise file management system. All founders hold executive management positions.

See Start-ups, page 80

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Start-ups

continued from page 78

Funding: $2 million, in one round closed in April 2002.

CEO: Bob Fernander was most recently vice president of business development at Motive, a service management software provider. He also has held marketing and sales positions with Surgient and Compaq.

Product: Deepfile Auditor and Enforcer enterprise file management appliances.

Enterprise file management made easy

Enterprise networks are known to be wastelands of junk files — nearly one-third of the files on a corporate network are redundant or haven't been accessed in a long time, Deepfile founders say. Imagine how more efficient network and storage operations would be if those duplicated or outdated files could be weeded out.

> "This is what PanGo's client/server software is designed for: mapping relevant data and applications to a user's location..."

Deepfile has developed two appliances with a goal of ridding the network of these files and optimizing storage capacity. The appliances run the Deepfile Auditor and Deepfile Enforcer file management system software, available since March 2003. Deepfile Auditor monitors the network, assigning a metadata reference to and reporting on files that meet user-definable criteria. Deepfile Enforcer then deletes the files or migrates them to less-expensive storage.

The appliances, which have Gigabit Ethernet connections, compete with storage resource management (SRM) software from vendors such as Arkivio and Softek. Besides its appliance approach, Deepfile differentiates itself by focusing on the Windows Common Information File System, the Unix Network File System installed on file servers and network-attached storage devices. Many other SRM products focus on block-oriented storage-area network data or application-specific issues.

Deepfile counts Medline, Polycom and Vignette among users of its year-old products, which are priced on the amount of storage they manage. The Auditor starts at $7,500 for 1T byte of capacity. The Enforcer starts at $15,000 for 1T byte of capacity.

— DENI CONNOR

Mirra

Mountain View, Calif.

Company name: The founders chose Mirra because it suggests a mirror and sight. They wanted a name that connotes always up-to-date.

How did the company start?: Founded in May 2002 by Tim Bucher, who was one of the original members of the WebTV engineering team and former vice president of consumer products at Microsoft. Bucher wanted to create a digital content management server for the small office/home office crowd.

Funding: $11.2 million, including a $8 million second round that closed in March.

CEO: Richard Mandeberg, who is an experienced executive at vendors of digital content software and services. Most recently, he was CEO of iQCommerce.

Product: Mirra Personal Server 1.1.

Serving media files for SMB networkers

As consumers, mobile workers and small-office managers watch their digital data grow in volume and value each day, they have three wishes. They want their data files backed up reliably and automatically. They want to access that data from anywhere safely and easily. And they want a secure way to share access to specific data.

The Mirra Personal Server grants all three wishes. The unique network appliance automatically and continuously backs up files on the home network, saving up to eight versions. Because the box is connected to Mirra's servers, users can log on to the Mirra Web site to gain access to the data back on their own server. Users also can share access to target files on the server, and send alerts of the data's availability via e-mail.

Plenty of products provide one of these features, but none offer all three, or even two. For backup, products such as Maxtor One Touch that back up a single PC requires users to push a button to back up and overwrite previous file versions. For remote access, products such as GoToMyPC provide access to a remote desktop, but not to network data. And you can share files via an FTP server, but the notion is daunting to novice users. Technical users can cobble together their own Mirra-like product, but that would be costly. The Mirra 80G-byte version costs $399; the 120G-byte version costs $499.

Launched last fall, Mirra is available at www.mirra.com, bestbuy.com and select Best Buy stores. The company says many of its first customers are digital photography hobbyists, financial advisers, consultants, real estate brokers, eBay merchants and healthcare professionals.

— TONI KISTNER

PanGo Networks

Framingham, Mass.

Company name: Combines "pan," for "personal-area network," referring to the company's original focus on short-range, Bluetooth, wireless products, and "go," to suggest mobility. Conveniently, "pan" also can have the sense "of, pertaining to or comprising all," in this case, mobility.

How did the company start? Mark Pollard, chief architect, co-founded the company in September 1999 with the goal of creating "proximity services" among users in short-range wireless networks, such as Bluetooth. By early 2000, PanGo shifted its focus to 802.11.

Funding: $6 million, including a $4.4 million round that closed in December 2003.

CEO: Michael Campbell, previously CEO of Michael James & Company, a management consulting firm.

Products: PanGo Proximity Platform.

Finding users, delivering tailored data

A quality control engineer climbs into the nose of a partially built jetliner, opens his notebook and connects to the aerospace company's wireless LAN.

The WLAN pinpoints his location and then sends him data and links to computer-aided design plans, 3-D models, the recent history of change orders and the current schedule for subcontractors installing equipment. When he moves to the front landing gear assembly, he's presented with a different set of data and content.

This is what PanGo's client/server software is designed for: mapping relevant data and applications to a user's location, be that in a manufacturing plant, a museum or a metropolitan police district. The software uses data from WLAN radio signals to figure out where the device is. Then a set of PanGo applications, or third-party applications written to the PanGo API, funnels content and access privileges to that user.

PanGo's software runs on Windows 2000, XP, Solaris and Linux servers, and on Windows 2000, XP, Win CE 3.0 and PocketPC 2002 clients. It includes the Panorama Location System Protocol, which handles communications between the programs; and LocationSurveyor, which collects data about the radio frequency signals around the site. LocationSurveyor draws on information sifted from the IEEE 802.11 WLAN by the Pangaea Mobile Interface, which is about 200 lines of client code that runs on the wireless handheld or notebook. Using proprietary algorithms, LocationSurveyor accurately calculates the user's location, which it then passes to SiteManager for tracking users as they move in and out of the various radio-defined spaces. SiteManager works with AppDirector, which acts as an applications server, hosting programs from PanGo and third- party software vendors. SiteManager summons from AppDirector the location-aware services available to a user at a given location. The software also tracks where users have been, for how long, and exerts access control.

PanGo plans to extend this idea to equipment tracking. New software can monitor and report on radio tags slapped on, say, hospital stretchers or wheelchairs. The company this month expected to begin internal testing of a third-party 802.11b radio tag, with a product release aimed for later this year. (Rival Bluesoft already offers a battery-powered WLAN tag.)

PanGo competes against companies such as Newbury Networks and Bluesoft, both of which require users to deploy separate hardware scanners around a building or campus to monitor airwaves and identify locations. Ekahau, a Finnish company, has a software-only approach like PanGo.

PanGo offers an API, development tools and ready-to-use applications, such as Intelligent Information Manager, which maps Web content with locations.

PanGo says it has seven customers (four using the software on their production networks) of its software, which has been available since the summer of 2002.

Pricing for the Proximity Platform ranges from $5,000 to $50,000 per site, depending on the number of access points. Pricing for the separate applications varies based on the number of access points, clients or assets, such as radio-tagged equipment, but generally starts at about $3,500.

— JOHN COX

Strix Systems

Calabasas, Calif.

Company name: CEO Bruce Brown, a native Iowan who "knows a lot about barn owls," coined this name from the Latin equivalent. The metaphors are rich: Owls do their best work in the dark, they're ruthless predators and they're wise.

How did the company start? In April 2000, Brown teamed with five others, most from telecom software vendor Vertel, to create Bluetooth radio products. They switched focus to 802.11 WLANs in summer 2002, with Bluetooth deployments failing to catch on.

Funding: $34 million, including a $15 million fourth round that closed in October 2003.

See Start-ups, page 82

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Start-ups
continued from page 80

CEO: Brown is formerly CEO of Efficient Networks, a DSL equipment maker Siemens acquired in early 2001.

Products: Access/One Network.

Wireless networking all the way

The big irony, and headache, of WLANs has been the fact that "wireless" only referred to the connection between the client device and the access points. The access points themselves had to be connected via Ethernet cable to Ethernet switches, just like any other part of the wired infrastructure.

Strix actually proposes to make wireless LANs . . . well, wireless (see story about Strix' launch at www.nwfusion.com, DocFinder: 1722).

The company's Access/One Network product is a stackable set of modules, each roughly the size of a typical paperback book. The only wire each stack needs is a power cable. You can select a client connect module with either a 802.11b, g or a WLAN radio, to link to notebooks and other wireless clients.

One of the modules is a dedicated 802.11a 54M bit/sec radio, which replaces the Ethernet cable that traditionally connects a WLAN access point to an Ethernet switch. Proprietary mesh and routing algorithms, running in another module with security and network management software, route WLAN traffic through a group of these stacks.

One stack, or two if you want a redundant connection, incorporates a module with a 10/100M bit/sec Ethernet port to connect the entire mesh via one cable to a LAN switch. The antennas used by the radios are in a module that caps the stack.

> "Instead of presenting spammers with one big traffic fire hose, we give them a straw."
> **David Brussin,** CTO, TurnTide

Strix also offers a Bluetooth radio module. It says modules for other wireless technologies, such as ultra wideband or radio frequency identification, are future possibilities.

To install, you plug the stacks into a nearby electrical socket, switch them on, and the Strix software allows each stack to discover and connect with its neighbors. A wireless laptop or other device associates with a stack and the laptop's data traffic hops, via the 802.11a backhaul signal, through the mesh to a stack that's cabled to the corporate LAN.

The network is intended to be monitoring and adjusting itself continually to cope with changes in client density, traffic loads, signal variations and network problems.

Access/One has been shipping since July 2003. Customers include Premiere Radio (a subsidiary of Clear Channel Communications), Lieberman Research Worldwide, Pacific Coast Cabling and the Central Texas Parole Violator Facility. Fully installed Access/One nets with all management software cost less than $1,000 per stack, the company says, depending on what modules are selected.

Strix is not alone. Start-up Firetide also uses the wireless backhaul idea. Companies such as BelAir, MeshNetworks and Tropos have introduced wireless mesh products, although many of these latter vendors are geared toward public safety and other outdoor applications. Strix is one of the few focused strictly on indoor enterprise deployments.

— JOHN COX

TurnTide

Conshohocken, Pa.

Company name: Founders felt TurnTide captured the essence of their business, which is all about using network technology to turn the tide against spammers.

How did the company start? TurnTide CTO David Brussin developed the anti-spam router technology in late 2000 (and filed for a patent for it in February 2001), while working at e-mail technology incubator ePrivacy Group on ways to stop the spam deluge. He began exploring commercialization options last fall, and in January teamed with Lucinda Duncalfe Holt, now TurnTide CEO, to found the company.

Funding: $1 million in a first funding round that closed in March.

CEO: Holt has 15 years of experience in management positions at start-ups and global Fortune 500 companies, including American Express and SEI Investments. Most recently, Holt was CEO at Destiny WebSolutions, a software and services provider to large financial institutions.

Product: The TurnTide E-Series anti-spam router for enterprises, SP-Series for service providers.

Stopping spammers at their own servers

Stopping spam is the goal of many software and appliance vendors, but none has taken the approach of TurnTide's anti-spam router. By using routing technology to stop spam at the network layer, TurnTide wants to make it technologically and economically infeasible for spammers to target corporate e-mail servers.

The idea that a network device could stop spam came to Brussin when he began thinking of unsolicited bulk e-mail as a theft of corporate resources. With their steady onslaught, spammers steal an individual's time, server processing cycles, storage capacity and network bandwidth. Stopping spam, Brussin reasoned, would mean making it impossible for the thieves to get at those resources. He realized that could be accomplished using TCP traffic shaping, a basic engineering technique for inserting quality-of-service and error-handling mechanisms into a network.

With TCP traffic shaping, the TurnTide anti-spam router limits access to bandwidth and therefore the speed at which a spammer can move traffic. Spammers have no choice but to comply because the control is placed on them by the routing protocol. "Instead of presenting spammers with one big traffic fire hose, we give them a straw," Brussin says.

Spammers are economically crippled, needing a week to send the amount of e-mail that was previously sent in an hour, Brussin says. "What we end up doing is driving spammers away in both the technical and economic senses and allowing legitimate e-mail to come through," he says.

TurnTide is targeting the anti-spam router at organizations with more than 2,000 e-mail accounts, with one router capable of handling hundreds of thousands of users. Installation is virtually transparent — it deploys without requiring any network changes, Brussin says.

But the basic device, Holt notes, is really just a conduit, like a cable box. TurnTide uses its own network to learn about spammers' behavior and then delivers routing updates to customer boxes. Customers pay an annual subscription fee, depending on router configuration. The fee varies widely from its starting price of $20,000, taking into account factors such as how distributed the e-mail infrastructure is, number of mailboxes and mail volume, Holt says.

The TurnTide router has shifted the odds against spammers at more than a dozen user organizations, including Drexel University and Edward Jones, and ISPs, Holt says. Next up: The company is developing an outbound-based anti-spam device and a higher-end router for ISPs that carry huge mail loads.

— BETH SCHULTZ

Vontu

San Francisco

Company name: Vontu is the English-sounding equivalent of Mont Ventoux, the famous mountain bicyclists traverse during the Tour de France, of which CEO Joseph Ansanelli is a fan.

How did the company start? In December 2001, Ansanelli and two colleagues left Kana Communications to tackle a particular problem they had heard many corporations complain about: how to stop sensitive data, such as customer information, from easily being sent out over the Internet. Co-founders with Ansanelli are Michael Wolfe, vice president of engineering, and Kevin Rowney, CTO.

Funding: $15 million, including $10 million second round that closed in December 2003.

CEO: Ansanelli, who most recently was vice president of marketing at Kana. Before that, he was CEO of Connectify, a provider of electronic direct marketing software he founded and Kana acquired.

Product: Vontu Protect 3.0 data firewall

Racing against corporate information theft

Enterprise network executives have been grappling with the problem of unauthorized data transmissions for as long as there's been enterprise networks. But Vontu founders witnessed the problem garnering more corporate attention of late because of two trends — the growth of identity theft and the increasing amount of data stored at overseas outsourcers — and felt they could provide a solution.

"We saw at Kana a lot of the issues we're trying to solve at Vontu," Ansanelli says. He explains the challenge: "Companies are centralizing sensitive information, such as Social Security numbers and credit card information, while giving the people who handle this data even broader access to the Internet."

With Vontu Protect, companies get a product for quickly stopping the problem of information theft.

The server-based software acts like a security checkpoint, monitoring outgoing communications such as corporate e-mail, Web-based mail, IMs and FTP transmissions. Vontu Protect looks at keywords and patterns, using "Secure Data Profile" technology to check those against sensitive information that a company never wants to see sent out over the Internet, either by mistake or on purpose. Vontu Protect costs about $35 per user.

The Windows-based Vontu Protect software doesn't block suspicious data. Rather, it alerts a manager of suspicious activity (via e-mail or automated phone call) while logging the event for audit purposes. A blocking feature aimed at controlling printer use will be forthcoming, Vontu says.

Vontu is not alone in its quest to keep the corporate crown jewels from being whisked out the door. A handful of other "V"-named start-ups — Verdasys, Vericept and Vidius — also are taking on the problem of detecting and preventing the unauthorized transmission of content. Each company has a slightly different approach.

Protecting confidential data is an uphill race, but Vontu executives say they're in it for the long haul.

— ELLEN MESSMER

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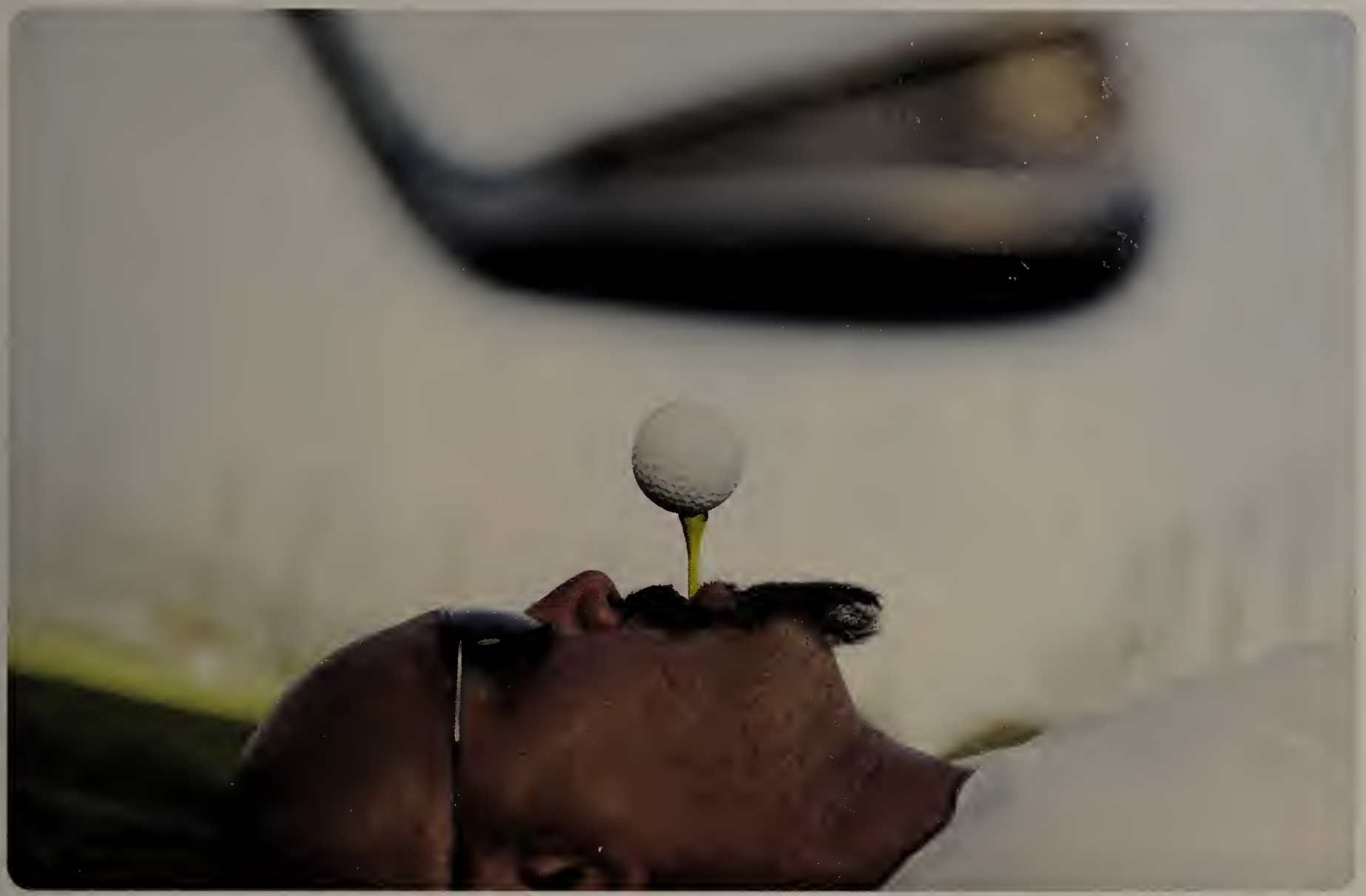

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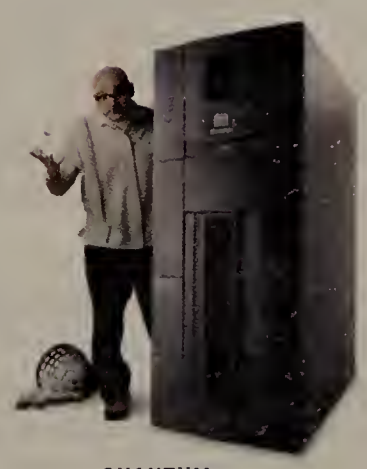

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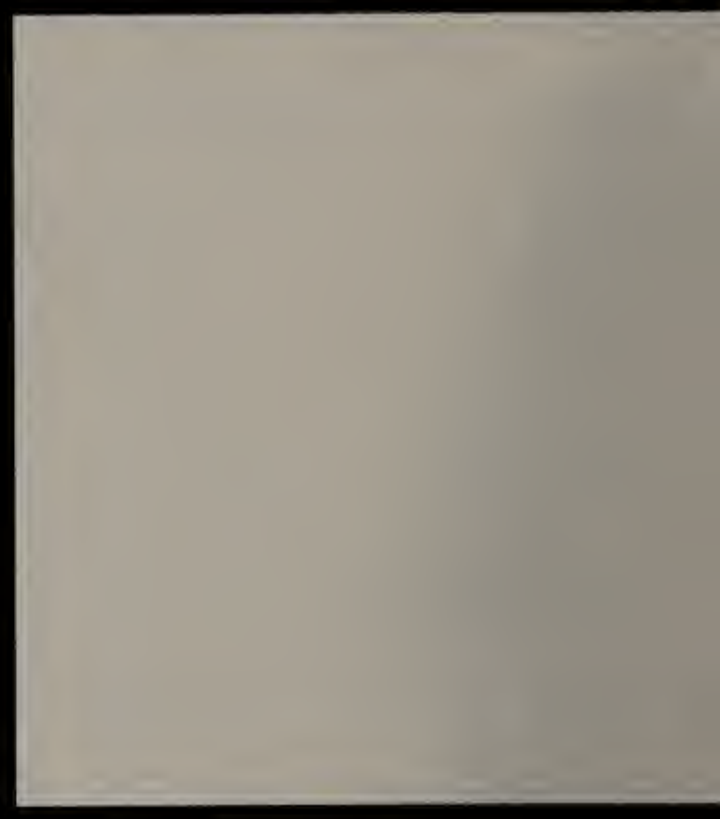

A year of progress

PROVEN PRODUCTS. PAYING CUSTOMERS. NEW FUNDING. OUR START-UPS TO WATCH FROM 2003 HAVE HAD A GOOD YEAR.

■ BY BETH SCHULTZ

If you think of wireless LAN switching today, chances are Aruba Wireless Networks will pop to mind. The same can be said for 10G Ethernet and Force10 Networks, or enterprise-class instant messaging and IMlogic. These companies became leaders in their niches, although they are still only corporate babies — start-ups we selected to watch in 2003.

As any parent knows, babies can be perceptive and agile. These and the other seven start-ups we profiled last year have proven wise beyond their corporate years. Each one has battled tough market forces to parlay beta testers into paying customers. Each has signed technology integration or marketing agreements with some of the biggest, most respected vendors around. They have even secured more funding — $76.5 million total — despite the continued clampdown on financing.

Some of these companies have achieved greater success than others, but all have accomplishments about which they can rightfully boast. Certainly, each bears continued watching. ■

Company	Flagship product	Finances	12-month overview	Notes
Won widespread respect				
Aruba Wireless Networks	Aruba 5000 enterprise-class WLAN switch.	$20 million secured in second round closed in September, bringing total to $29.5 million.	• Rolled out the Aruba 5000, the Aruba 800 stackable WLAN switch and the Aruba 50 access points, as well as management and security tools. • Appointed Don LeBeau, a former Cisco senior executive, as CEO. • Partnered with Avaya, Funk Software and Zone Labs for their technology expertise.	Aruba has fared well among the cluster of vendors vying for the attention of WLAN users. The company says it has shipped more than 300 switches and 3,000 access points to more than 90 paying customers, including Alliance Capital, Dartmouth College, Legal Services of New York and the University of Virginia. And Aruba has signed on more than 100 resellers worldwide.
Force10 Networks	E-Series 10G Ethernet switches.	No addition to the $210 million reported as of February 2003.	• Added advanced security and resiliency features to the E-Series switches and rolled out a compact line-rate 10G Ethernet switch/router. • Appointed Marc Randall, previously senior vice president of engineering, as CEO. • Signed IBM as a reseller.	E-Series switches have become a popular choice for grid networking among supercomputer centers such as Argonne National Laboratory and the San Diego Supercomputing Center. However, Force10 still must battle Cisco and Extreme Networks for the enterprise LAN core.
IMlogic	IM Manager, enterprise-class IM management software.	No addition to the $18 million in funding reported as of January 2003.	• Released IM Manager 6.0, providing real-time business policy enforcement, role-based provisioning and authentication, and systems management; and IM Detector, a free tool for discovering and reporting on enterprise IM traffic. • Integrated McAfee anti-virus technology and Microsoft Office Live Communications Server 2003 with IM Manager.	IMlogic is turning into the go-to vendor for enterprise IM management, particularly among financial services firms grappling with regulatory compliance issues. Amerex Energy, FTN Financial and Stifel Nicholaus are customers.
NetContinuum	NC-1000 Web Security Gateway.	$21 million secured in third round closed in April 2003, plus another $1 million in July, bringing total to $55 million.	• Enhanced the NC-1000 with a network firewall, security for FTP applications and global enterprise management capabilities. • Co-founded an OASIS technical committee developing a specification for letting application security products share data about vulnerabilities.	NetContinuum claims approximately 40 customers in financial services, retail and manufacturing, including Boston.com, Navy Federal Credit Union, Ross Stores, Sumitomo and the U.S. departments of energy, the interior and transportation.
Topspin Communications	Topspin Switched Computing System, for virtualizing data center resources and creating InfiniBand clusters.	$20 million secured in third round in November, bringing total to more than $67 million.	• Added intelligence that enables the Switched Computing System to translate policies, defined by third-party or homegrown provisioning applications, into actions that map together server, storage and networking resources on the fly. • Released a 24-port InfiniBand stackable switch and an Ethernet gateway. • Rounded out its InfiniBand software stack with a driver for the Intel Itanium 2-based Windows Server 2003.	Topspin's success in forging technology integration agreements and deploying product has given advocates of the much-maligned InfiniBand high-speed I/O switching fabric a reason for hope. The company has technology integration deals with Dell, IBM, Oracle and RLX Technologies, for instance, and has deployed its switching system within national labs, universities and large financial firms. Prudential Insurance is an enterprise customer.
Strengthened their reputations				
Sana Security	Primary Response, server-based intrusion-prevention software.	$10 million secured in third round in January, bringing total to $22 million.	• Released Primary Response 2.1, providing simultaneous support for Linux, Microsoft Exchange Server and Windows 2003, and worm suppression and enterprise-class manageability. • Established product interoperability and co-marketing partnerships with Guardent (now part of VeriSign), Intrusion and Micromuse, and signed more than 25 resellers.	Sana claims more than 75 enterprise deployments in the government, financial services, entertainment and technology industries. Examples include the United States Air Force Material Command, News Corp., Smith & Hawken and Raytheon.
Vieo	Vieo 1000, an application infrastructure management appliance.	$5.5 million secured in a second-round extension in July, bringing total to approximately $45 million.	• Released the Vieo 1000 for general availability. • Partnered with a handful of vendors, including BEA Systems, Dell, IBM, Oracle and Sun. • Helped initiate The Open Group effort to create a common industry management architecture and a set of standards profiles for interoperability.	Vieo is so certain its purpose-built appliance is far superior to traditional software management tools that it will install the Vieo 1000 for free in an enterprise data center and guarantee that within 24 hours it will be delivering greater value than the existing software-only management tools. Vieo hasn't had any takers, but has met with about 10 companies interested in the idea. But Vieo says it is working with 12 beta users, has another 20 test installations planned, and that it already has "numerous" paying customers, including Smith & Associates (www.nwfusion.com, DocFinder: 1723).
Zultys Technologies	MP1200 IP PBX.	Finances for this privately funded company remain undisclosed.	• Rolled out the MX250, an IP PBX for small and midsize business networks and branch offices; MXgroup, software for networking the MX250s across a corporation; and several IP phones. • Established a product licensing program for the MX250 that lets customers expand their existing phone systems or get a new one for a minimal outlay. • Established direct sales offices or signed on distributors in 43 countries.	Zultys is quietly building a name for itself worldwide, having signed approximately 100 MX1200 customers and 350 MX250 customers, the company says. Still, its biggest challenge remains getting enterprise users tied to traditional telephony vendors to consider its IP PBXs.
Refocused to improve growth				
Avaki	Avaki Data Grid, enterprise information integration software.	No addition to the $20 million reported as of February 2003.	• Added more sophisticated data-provisioning capabilities with Avaki Data Grid 4.0. • Created the Enterprise Data Integration Framework for leveraging best-of-breed integration tools and Avaki's grid technology. The framework will be a feature of Avaki Data Grid 5.0, which the company says is due out soon. • Inked a marketing and technology integration deal with IBM, and a reseller agreement with Sun.	Avaki has gone from calling itself a grid vendor to a provider of enterprise information infrastructure software (which happens to rely on a data grid). That's a subtle shift, but one that resonates better with customers, CEO Tim Yeaton says. With this shift, Avaki has moved beyond its original life sciences and pharmaceutical target markets to financial services, manufacturing and petrochemical. It now reports having more than 25 customers.
Z-Force	ZX-1000 File Switch, a network node that enables creation of a scalable network-attached storage array.	No addition to the $16 million reported as of November 2001.	• Released the ZX-1000, with support for Microsoft's Common Internet File System protocol. • Hired veteran executive Alan Kessler, most recently CEO at IP SAN vendor Intransa, as CEO. • Refocused engineering team under leadership of Alan Brown, most recently vice president of engineering at Intransa.	Under its new leadership (Kessler is the third Z-Force CEO and Brown the third vice president of engineering), Z-Force is focusing on bolstering the ZX-1000 with support for Network File System and other protocols, adding enterprise-class manageability and improving performance based on feedback from early customers and beta testers, Kessler says.

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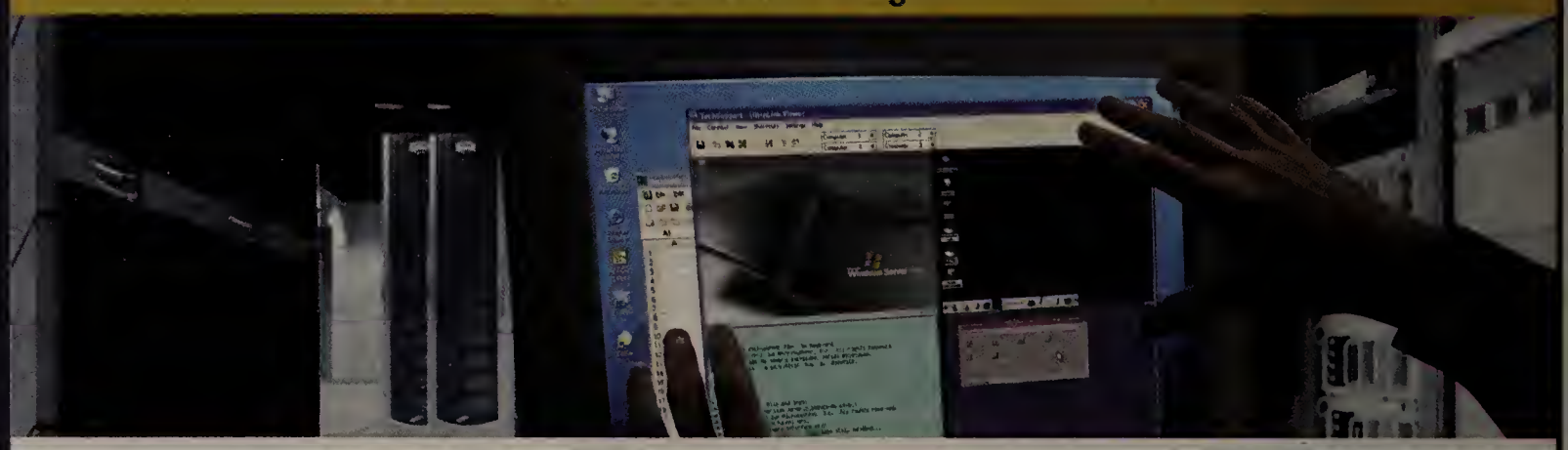

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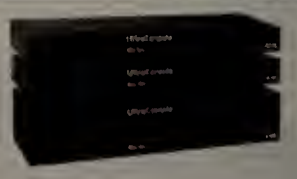

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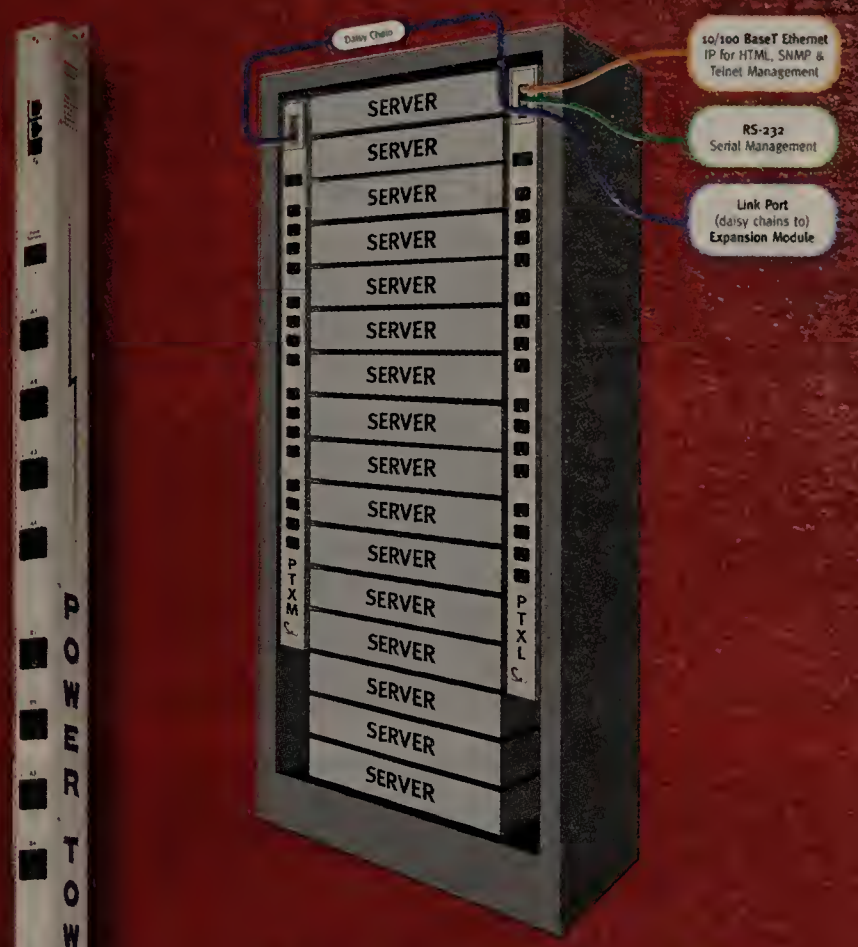

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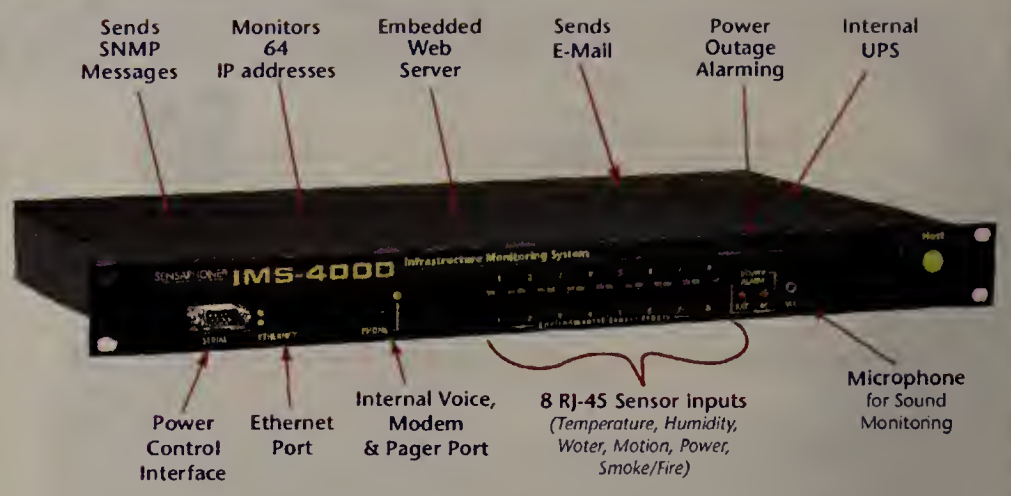

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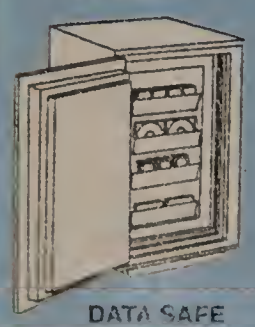

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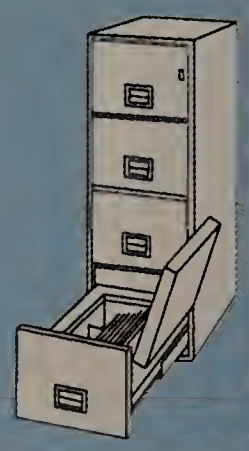

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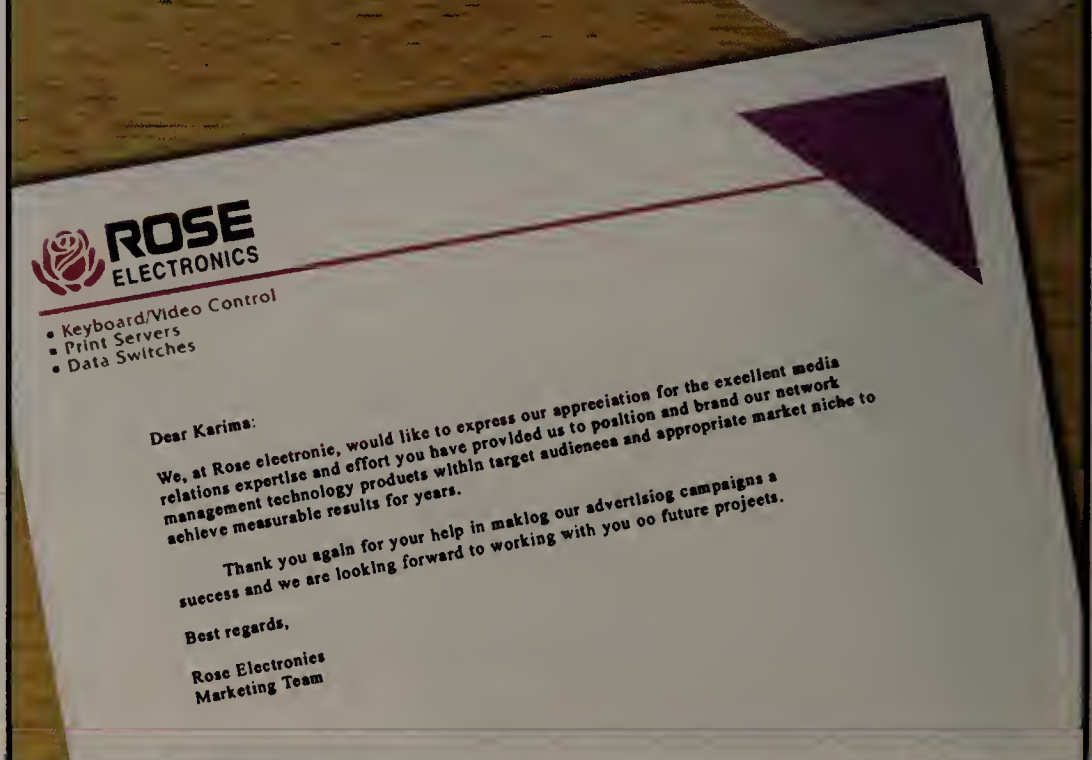

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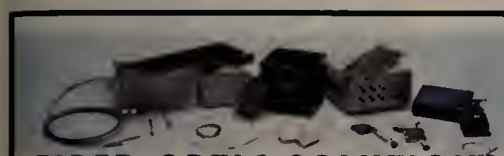

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Sr. Network Engineer - UNIX sought by network security device manufacturer in Broomfield, CQ to work in Broomfield and other unanticipated job sites in the U.S. Installs, configures, maintains and troubleshoots high-availability, fully redundant networks that utilize Sun Solaris Servers, Veritas and Sun Clusters, Veritas Volume Manager, Veritas File system. Work with hardware RAIDS such as A1000 and EMC. Maintain a mission critical production environment at a data center and/or collocation facility on a 24x7 basis. Design and maintain backup solutions with Veritas Netbackup. Install and configure HA agents for the company database. Maintain NIS and NFS servers in a multi-platform R&D environment. Write Perl and shell scripts to automate procedures. Engage in project management as required. Requires 3 yrs exp. installing, configuring, maintaining and troubleshooting high-availability, fully redundant networks utilizing Sun Solaris Servers, Veritas and Sun Clusters, Veritas Volume Manager, Veritas File system and Veritas Netbackup software and hardware RAIDS. Working knowledge in maintaining a production environment at collocation facilities on a 24x7 basis. M-F; 8am-5pm; $110,000/yr. Respond by resume to Employment Programs, PO Box 46547, Denver, CO 80202 and respond to Job Order Number CO5074345.

RESEARCH PROGRAMMER
University of Illinois at Chicago

Administer UNIX, Windows NT and other servers used for teaching; programming; provide instructional technology consulting to faculty; help develop technology-based courses and teach computer seminars and workshops. The applicant should have a Bachelor's Degree in Computer Science or related field, and have teaching experience. The successful candidate should have two years of combined experience in Windows NT, and UNIX system administration, Webmaster experience, programming in HTML, Perl and C, and have experience in teaching, course development and in using computer and Internet technology in education. Working knowledge of Apache, IIS, Tomcat, Oracle, PL/SOL, Transact-SQL and multimedia authoring tools are a plus. Please submit resume by 5/28/04 to Mint Simagrai, Academic Computing and Communications Center, 1940 W. Taylor, Room 124 (M/C 135), Chicago, IL 60612. UIC is an Affirmative Action/Equal Qpportunity Employer.

Lead SW Dev Engineer - Lead team to analyze, design, develop, code, document, test, debug, migrate, & implement complex SW applications, databases, reports, &/or make significant enhancements to existing complex systems using Oracle database design/analysis, VB, C++, Java, Web development, SOL, & PL/SQL programming on UNIX & Win NT op systems. I.D. requirements, analyze business problems, & create tech solutions. Apply principles, theories & concepts & use methodologies, tools, documentation processes, & test procedures to complete projects. Responsible for overall success of project including meeting cost, schedule & quality objectives. MS Comp Sci, Eng, MIS, CIS, or related + working/theoretical knowledge of Qracle design/analysis, VB, C++, Java, Web development, SQL, PL/SQL programming, & Unix & Windows NT operating systems. $78,100/yr. M-F. 8-5. Denver, CO. Must have proof of legal authority to work permanently in U.S. Application by resume only to CQ Dept of Labor, Workforce Development Programs, P.Q. Box 46547, Denver, CO 80202. Ref job# CQ5074964.

Software Engineer IV - Web Technology

(Waltham, MA) Design, develop, and support a secure gateway system for authentication, authorization, and entitlement of all application calls to the backend servers in the telecommunications industry using CORBA and XML Technologies. Design, develop and support highly scalable and reliable common libraries used by all developers. Assist in the designing and developing of n-tier distributed web application for telecommunications using CORBA, XML Technologies, C/C++, JavaScript, HTML and Informix. Review all applications code and processes to improve quality of the applications. Position requires a Bachelor's degree in Computer Engineering or Systems Engineering plus two years of experience in the job offered or two years of experience in the related occupation of Engineer, Consultant or Programmer. Two years of previous experience must include experience with CORBA, XML Technologies, C/C++, JavaScript, HTML and Informix. $73,500/year, plus usual corporate benefits, 9 AM - 5 PM, 40 hrs/wk. Mail two copies of resume to Case #200204210, Division of Career Services, Labor Certification Unit, 19 Staniford Street, 1st Floor, Boston, MA 02114. Must have proof of legal authorization to work in the United States.

Systems Analyst/Web Developer sought to participate in team envmt where ASP & ASP.net s/ware applics are created & maintained on MS IIS Webservers & other dvlpmt tools incl. VBScript/Visual Basic; modify ASP applics incl. new functionality, bug fixes & report dvlpmt; create/modify flow charts & technical specs of web & d/base applics; build & dsgn large-scale relational d/bases in SQL Server incl. table structures, stored procedures, triggers & DTS packages; participate in all phases of s/ware dvlpmt life cycle by gathering & defining reqmts, dsgn, dvlpmt & testing; assist in technical analysis of change requests & perform technical duties such as redesigning d/base structures & ASP code; provide testing support for web based applics dvlpd using VBScript/VB, ASP, ASP.Net & SQL Server. Req Bach in Comp Sci, Info Systems Mgmt or related field + 3 yrs exp w/web applic dvlpmt using ASP, SQL Server, IIS Webserver, VBScript/VB & large-scale relational d/bases, incl. at least 1 yr exp working in .NET envmt. Send resume w/code SD1 to Irene Marchuk, American Institutes for Research, 1000 Thomas Jefferson St, NW, Washington, DC 20007. EOE

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NH based Company has openings for Software Engineers & DBA's: (Multiple openings): Research, Analyze, Design, Develop, Test, diagnose, and implement various business applications.

Implementing, upgrading and supporting Oracle Financial Applications 10.7NCA/11i or Oracle HR, Payroll, Training and Administration. PL/SQL, SOL*Plus, SOL*Loader, Discoverer 2000, Developer 2000, OAS, Forms (6i), Reports (6i), TOAD, experience on AP, GL, PO, FA, CM, PSB, SYSADMIN & AR Modules. Oracle DBA, Oracle Utilities, Unix Shell Scripting, PL/SOL, Erwin Data Modelling/Designing. Interwoven TeamSite, Installing and upgrading Teamsite, Templating, WorkFlow Management, Content Management System, Open Deployment, MetaTagger, ASP.NET, C#, Visual Studio.NET, XML, XSLT, SOL SERVER2000, Oracle9i. Dreamweaver 4.0 MX, Crystal Reports6.0, Lawson Application 8.X,Unisys 2200,Sun Solaris 2.9, Teradata Datawarehouse,COBOL,JCL,VSAM,CICS ,DB2,MVS,IMS,VSAM,Expeditor, Spufi, File-aid, PMX, EDI Gentran/Mercator, AS/400,ILE-RPG IV, CL/400, SQL/400, MAPICS, Query/400 and DB2/400,Lotus Notes, PeopleSoft HR/Financials, BAAN ERP, BAAN tools, SAP R/3 and ABAP/4, Web Technologies like Java, J2EE, JDBC/ODBC, Websphere, MQ Series, EJB, C/C++, Visual C++(MFC), Embeded Systems, Win32 API, Visual Basic 6.0, ATL COM/DCOM (MTS2.0), CORBA, Tuxedo, .Net Webservices, Cold Fusion, CFMX, Datawarehousing Informatica and Datastage. SAS 8, WinRunner 6.0, Silk, Load Runner, Rational Suite, SOA Suite.

DBA's must have experience in installation, migration, moving, setup, monitoring and trouble shooting of various database applications. May require travel to client sites. Software Engineer $78,000 & up; DBA: $60,000 and up. Mail resume to CRG Inc, 1087 Elm Street, Suite# 501, Manchester NH 03101.

Software Engineer: For proprietary trading firm, design & develop trading support applications for various equities & derivatives securities; participate in all phases of software development from initial req's through final quality assurance & implementation; design & develop client components for system; design & implement robust & reusable source code; monitor live trading strategies & work w/ traders & quantitative researchers to develop, back test & implement new strategies. Req's: Bachelor's or equivalent in Comp Sci, Eng or a related field. 5 yrs exp in job offered or 5 yrs software development exp. Exp must include software architecture & project mngmt. Exp in market data, statistical arbitrage & developing real-time trading sys interfaces, including ITCH, OUCH, FIX & CTCI. Prof in C++, MFC, COM, DCOM, Windows NT/2000/XP, UNIX, C#.NET, VB.NET, PL/SQL, QDBC, TCP/IP, ADO, QLEDB, Socket & RPC programming. Knowledge of Connectivity to Exchanges, Equity/Derivatives Trading & Middle Office/Back Office. 40hrs/wk. Send res. to box D-10, P.O. Box 17182, Phila., PA 19105.

DATABASE ENGINEER - Aid w/ design and dvpmt. of databases for media telecomm. prods. Req'd: Masters in Mgmt. Info. Sys. Or CS, Fluency in Turkish. Resumes: Mezun.com Inc. 3500 Boston Street, Baltimore, MD 21224. Attn: L. Heron, Jr.

Data Acquisition Developer Sr. - Large bank holding company, headquartered in Tennessee seeks experienced data acquisition developer. Primary responsibility is ensuring the currency, quality, and integrity of the data loaded from sourced systems into the data warehouse. The implementation of business rules associated with the publication of business intelligence data in the data warehouse is a primary focus of this position. The Data Acquisition Developer will enhance modify and/or change data published in the data warehouse (DW) from front-end system providing consistency and synchronization across all platforms. Should have experience using Ablnitio or other equivalent ETL tools in a UNIX environment. Experience in integrating metadata repositories into the ETL process.

Must demonstrate expertise in UNIX scripting and automated load scheduling to meet data warehouse service level agreements. Experience in the Ablnitio Co-Operating Environment, Ablnitio Re-Source Control, Ablnitio Data Profiling, DQ Component Development and working knowledge of Enterprise Metadata Environment. Should have working knowledge of Teradata Utilities like BTEQ, MLOAD, FASTLOAD, etc.

Minimum educational requirements include the following: Bachelor's degree in Computer Science or equivalent education and exp. 5+ years in systems development, databases, or other related areas. Solid knowledge with line of business (LQB) legacy systems. Proficiency with data cleansing and extraction tools. Strong knowledge and understanding of one or more database management systems. Strong Analytical and problem solving skills. Excellent project management skills in the areas of planning and monitoring projects. Rewards commensurate with experience and at least equal to the minimum prevailing wage for a 40-hour week. Standard benefits package available. Only persons with authorization to work in the U.S. need to apply. EEO. Submit resume and three references to:

Shelly Muhammad
Sr. Corporate Paralegal
Union Planters Corporation
7130 Goodlett Farms Pkwy.
Cordova, TN 38016

Senior Database Administrator - Maintain multiple Oracle Applications environments. Accept and approve database design, participate and agree on Oracle Applications database acquisitions, perform or check sizing results, acquire requisite system software and system/storage devices, perform data change control, install upgrading database software, implement production, test and staging databases. Maintain dictionary or repository. Assist operations staff in setup of required operations environment for running the system. Assist in provision of agreed service levels to the user/business, monitor the system (derive statistics for usage, performance, problems, utilization, etc). Ensure integrity of data in database per defined database constraints and help maintain and define constraints with active participation from development groups. Implement disaster recovery and report architecture procedures and solutions. Administer and implement security integrity controls. Maintain, follow and adhere to policies, procedures and standards relating to database management. Requirements include a Master's degree or equivalent in Computer Science, an Engineering discipline or closely related field and six years of work experience in the job offered or related field of database administration within an Oracle Applications environment. Applicants must have unrestricted authorization to work in the United States. Salary $105,000/year. 40 hours/wk. Respond with two copies of resume to Case #200204237, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

Programmer Analyst needed to analyze, dsgn & dvlp computer applics & infrastructures using Borland C++, STL, TCP/IP, ACE (Adaptive Communication Framework) & MS SQL Server to support & enhance quantitative research & operations for commodity trading advisor firm. Lead projects using algorithm-based frameworks for proprietary computer s/ware applics, knowl. of FIX Protocol & knowl of futures/equities mkts. Form reqmt specs to dvlp prgms using structured object oriented analysis & dsgn. Dsgn & code project specs into reusable coding libraries. Perform standardized B&W box (incl. regression) testing. Analyze & enhance prgms to increase performance & adapt to new product reqmts. Must have Bach/equiv in Comp Engg or Comp Sci & 2 yrs exp in job. Send resume in dupl to H. Lie, 1700 Broadway, 39th Fl, NY, NY 10019.

F/T Instructional Technology Database Support Developer. Responsible for assisting faculty in using available technology to enhance teaching and learning using Tango 4.5 middleware and Dreamweaver. Maintain and extend currently available learning technologies and promote their wide and effective use. Design, create, develop and maintain customized database-driven information and decision support systems and solutions using 4D, ERDs, and Relational Database Management System. Develop and maintain online learning services. Server maintenance and administration. Customize database-driven systems development using Normalization and Banner. Educational background must have included the above referenced computer skills. Must have a Master's in Management Information Systems or related field. Competitive. Send resumes to: Dr. Dwight Call, GA College & State Univ., CBX 049, Milledgeville, GA 31061.

International Build/Release Engineer wanted to design, implement & maintain product installers, incl. InstallShield installers for French, Italian, German, Spanish & Dutch products for Dragon Naturally Speaking; resp. for automated builds of all released products, incl. maintaining, forking & archiving source code repositories; creating master discs; implementing automatic build features; & performing test-automation. Must have Bach. deg. in Comp. Sci., Eng. or related field & 2 yrs. exper. with product installation, incl. at least 1 yr. exper. with InstallShield, & knowledge of object oriented programming languages such as C++, Java or Python. Salary $65,000/yr. Send 2 resumes to Case #200204238, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st. fl., Boston, MA 02114.

Computer Programmer, Numerical Control. Dvlp prgm to control machining & processing by automatic tools, eqpmt & systems; prep flowcharts, write modules, test & revise prgm to encode or correct machine instructions using simulation, modeling, embedded & Real-Time s/ware architecture & dvlpmt skills in networked envrmt. Reqs Masters or equiv in Comp Sci, Info Systems, Electrical, Electronics, Mechanical or related field of Engg. 40hr/wk, 8a-5p. Resume: Anniston Pump Shop, Inc, 2800 US Hwy 431 North, Anniston, AL 36206.

Web Developer to develop, modify and implement web-based information systems to ensure secure access to sensitive information by end users. Develops queries, stored procedures for manipulation and integration of large datasets. Develops scripts/programs to convert data into a format to be easily loaded into database. Develops real time on-line management reports for internal and external users. Uses ASP, IIS 4.0, HTML, XML, COM, ADO, JavaScript, VBScript, Visual Basic, SQL Plus or SQL Query Analyzer, Windows Scripting Host in Windows NT Operating System in performance of duties. Requires Bachelor's Degree in Computer Science, Information Systems, or Information Decision Science. Also requires one year direct experience in the job offered position. Send resumes only, no calls to: Craig Odegaard, Director of Information Technology, PayNet, Inc., 5750 Old Orchard Road, Ste 510, Skokie, IL 60077.

Systems Application Engineer: Will define product features, detailing product requirements for company's SONET/SDH Framer and Mappers. Will interact with strategic customers and other industry leasers on systems architectures and protocols and define the current and next generation of products. Responsible for digital hardware design and architecture of digital systems. Requires: Bachelor of Science degree in Electrical/Computer Engineering or equivalent. Must have knowledge of SONET/SDH and Viewlogic. Demonstrated ability to test, debug and characterization of test platforms and ASICs with SONET/SDH instrumentation. 40hrs/wk (9:00 a.m. to 5:00 p.m.) $80,000.00/yr. Send two resumes/responses to: Case Number 200204211, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114

Integrated Software Solutions, Inc., a rapidly growing IT consulting Co has permanent positions open for Computer Software Professionals w/BS or equiv deg & exp in one of the following skills or in a combination thereof:

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Send Resume to:
Jobs@LibsysInc.com

Technology-consulting firm in WI has mult. IT pos around country w/exp in 1 or more (depending on need) of follwg skills: WebMethods Integration Server, WebMethods Trading Networks, WebMethods Enterprise Server, IBM MQSeries, IBM Assembler, IBM WebSphere, Mainframes, CICS, DB2, COBOL, Unix, Sun Solaris, Win, C/C++, Visual C++, VB, Power Builder, Dsgnr 2000, Dvlpr 2000, Oracle, Oracle Applic, SQL Server, MS Access, SQL, SQL Plus, PL/SQL, Data warehousing Tools, HTML, DHTML, XML, TCP/IP, Perl, JSP, Weblogic, Java, Java Script, VB Script, ASP, Clanfy, Documentum, CoreDossierX, Rational Rose, Testing tools & QA methodologies. Rel edu & exp reqd. Relocation may be nec. for most jobs. Resume: Exec Search, Inc., C/O ISS, 1300 Bent Creek Blvd, Ste. 200, Mechanicsburg, PA 17050.

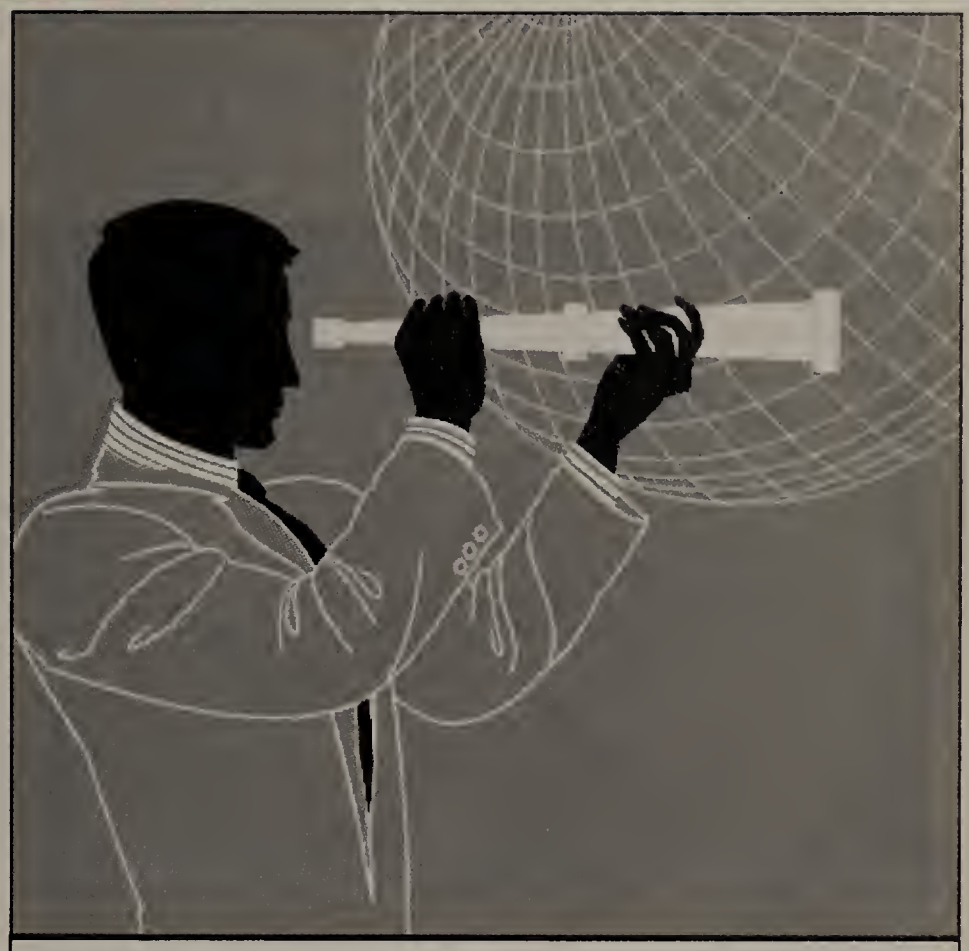
SOFTWARE ENGINEER to design, develop, test, enhance and maintain web-based and client/server application software for the insurance industry using C, C++, Java, Java Script, Oracle, JDBC, J2EE, JSP, Servlets, EJB, TCP/IP and UML under Windows 95/98/200/NT/XP, DOS and UNIX operating systems. Requires: M.S. Degree in Computer/Information Science, an Engineering discipline, or a closely related field with two years of experience in the job offered; Experience gained before or after earning the M.S. degree will be accepted; Competitive salary offered. Send resume to: Infinity Insurance Company, P.O. Box 444, Birmingham, AL 35209; Fax at 205-803-8406; or E-mail at: Jobs@Infinity-Insurance.com; Attn: Job CM.

Business Application Analyst. Design business apps. & provide support for standalone & LAN PC users & VOALA/System Administrators. Maintain servers, accounting app, software/system & accounting data. Req: Bachelor's in Business Administration w/ courses in Info. Sys. 40hrs/wk. Job/Interview Site: LA, CA. Send resume to Volunteers of America Los Angeles @ 3600 Wilshire Blvd., #1500, LA, CA 90010.

IT professionals (programmers/system analysts, software engineers) wanted by Advanced Technology Group to design applications using Java, Oracle, SQL, HTML, WebLogic, JSP, VB, EJB, etc. Min. requirement is BS/MS with exp. Please send resume to info@atgusainc.com. EOE

Morrisett Associates is a small professional web/software design company. It has openings for Web Developers, IT Professionals for Web development using ASP (VBScript and JavaScript). Must have BS/MS with exp uing ASP, ASP.Net, VB.Net. Contact morrisett@midwestcyber.com. EOE

Programmer/Applications Developer (Provo, UT): Design/develop applications based on consultation with systems analysts and other programmers. Convert designs and specifications into computer code. Program projects using XSLT; integrate Web/ Database; program in Cold Fusion, Oracle, and JSP. J2EE, Apache, MySQL, Postgre SQL, Tomcat & Linux; 4 year CS Degree; $42,000 per year. Send applications to Aaron Alder job0034@power-glide.com, Power Glide 1682 W 820 North, Provo, Utah 84601. Applications accepted from April 20,2004 through May 20,2004.



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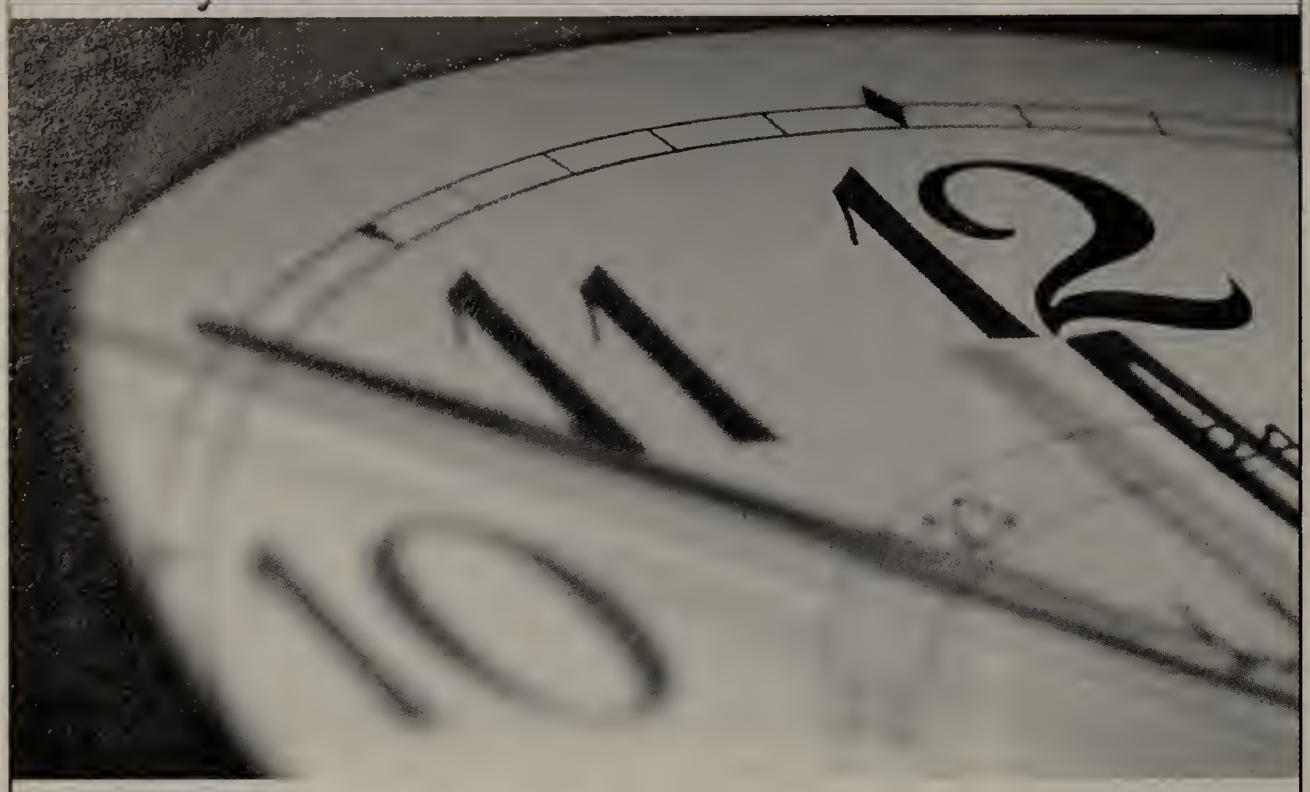

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Corpus, Inc. has multiple openings for IT professionals to design and develop applications using Oracle, SQL, PL/SQL, COBOL, C/C++, VB, Java, XML, ERP, ASP, NT, XSL. Min BS degree. Traveling is required for some positions. Please send resumes to resumes@corpusInc.com. EOE.

Hexium, Inc. is a new IT company. It has openings for software engineers, web developers, system analysts. Qualified candidates must have BS with substantial experience in ASP.Net, SQL. Travel may be required. Please apply at humanresources@hexiuminc.com. EOE. No calls.

Programmers, Software Engineers & DBAs: Analyze, design, develop, test apps. in (A) Microsoft.Net tech, Oracle/SQL Server/Sybase suites, Java suite, Weblogic, Apache, COBOL; (B) Documentum, ATG Dynamo, Weblogic, Java/ Oracle suites and internet security/e-commerce analysis (C) Design, administer and maintain databases in Sybase/SQL Server and Oracle. Please respond to Attn: Vipul Goel, NetAppl, Inc., 2415 San Ramon Valley Blvd., Suite 4140, San Ramon, CA 94583. EOE

Computer Programmer II needed in Orem, Utah to enhance, integrate and develop new projects. Will provide expert level delivery of custom applications utilizing various technologies and methods (i.e. Java, Delphi, PHP, JavaScript, C, XML/XSL and UNIX/LINUX shell scripting). B.S. in Computer Science or related field required. Also requires: 1. Specialized knowledge in object-oriented programming in PHP, Delphi and JAVA and database experience in MySQL, Advantage Database Systems and SQL-SERVER. 2. Demonstrable ability to perform extensive web database design and programming; 3. Requires travel nationally and internationally. 4. U.S. employment authorization. For full listing of job duties, requirements and application procedure go to JobADSUSA.com job order 230774 or call (801) 379-4011.

Developer/Support/Quantitative Analyst sought by Knight Trading Group for Santa Clara, CA office. Candidate must possess Master's degree in Computer Science or directly related field and 18 months experience in software development, design and analysis. Must have experience in developing large high-performance and highly scalable software systems and skills and experience in C, C++, JAVA, JSP, J2EE, Perl, SQL, ORACLE database, UNIX, Windows. Respond to: Human Resources Dept. 891-TJXLL, 525 Washington Blvd., Jersey City, NJ 07310.

Information Systems Analyst wanted by Real Estate Brokerage in IL to coord activities in such fields as electronic data processing, info systms, systms analysis & comp prgmg. Must have Bach or its equiv in Info Systms/Comp Sci & 1 yr exp in job offd or related position in Systms Analysis/Prgmg. Respond to Mr. P. Brown, Oxford Falconridge & Pensby Realty, Inc., 40 Du Page Ct., Ste 410, Elgin, IL 60120. No calls.

Sr. Software Consultant sought by s/ware dvlpmt co. for Kansas City, KS office to dsgn & dvlp custom based web, d/base & desktop applics. Dvlp thru full s/ware dvlpmt lifecycle for assuring timeliness, cost-effectiveness & overall qlty of deliverables. Bach in Comp Sci, Engg or related field + 4 yrs prof'l exp & 6 mos exp w/VB, ASP, SQL Server, ORCAD/ PCAD/PADS2000 & Oracle. Send resume to: FNSTAR, Inc, 12009 Horton #66, Overland Park, KS 66209; email: jobs@fnstar.com.

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BackSpin Mark Gibbs

The cost of spyware

Last week I wrote about a piece of software called vx2 and loyal reader and constant warrior against the evil forces of malware Scott Hutchinson wrote in to ask, "Why would a user be enticed to install vx2? What does the user think it will do for him?"

Good question. Vx2 became famous for being included in the AudioGalaxy Satellite file-sharing system, but a user outcry got it removed in November 2001. Today, vx2 and its variants can be found in a "free" viewer for adult video content and the "free" products from Mindset Interactive.

According to PestPatrol, "it is hard to tell where this piece of spyware originated. It was first seen as Blackstone Data's Transponder, but repackaged versions of the same product are popping up under several different companies." PestPatrol lists the aliases of the code and sources of each as Transponder from Blackstone Data; vx2, RespondMiter and Sputnik from vx2, Corp.; Aadcom Extreme Targeting from Aadcom; NetPal from NetPalNow and also Mindset Interactive.

Even worse than vx2 is SAHAgent (aka Golden Retriever, ShopAtHome and ShopAtHome Select). Ed English, CEO of InterMute, which publishes a spyware-removal utility called SpySubtract, tells me that the latest version of SAHAgent installs under Windows as a Winsock 2 Layered Service Provider (LSP) and does sneaky things such as redirect browsers to merchant sites to generate affiliate fees.

So let's say you find SAHAgent installed and you want to get rid of it. But wait a minute — there's no uninstall routine. And if you try to delete SAHAgent's registry entries and files, you will probably find your network connections no longer function because SAHAgent is an LSP, something that is pretty tricky to remove.

And I haven't mentioned Claria yet. Claria, which used to be called Gator, is one of the most notorious publishers of adware (got to be careful there, the company has apparently taken to suing anyone who calls its code spyware). Gator has long been one of the poster bad boys of the adware world.

The reason it is still in the game? Adware pays. In fact, just a couple of weeks ago, Claria filed for an IPO to raise $150 million to continue developing what the company is pleased to call a behavioral marketing platform.

But so far all we have discussed is commercial spyware. There is also the bad-guy stuff: Software that acts as key-loggers, Simple Mail Transfer Protocol relays for spammers, password capturers ... you name an attack or intrusion, there's some spyware that does it and could do it to your network. There are even dialer spyware programs that will place long-distance calls using your modem in an attempt to rack up huge call charges to 900 numbers.

If you're starting to think these programs are dangerous, you're right. They often slow down browsing and overall PC performance, can make your system unstable, and waste huge amounts of time and money. And on top of that, hacker-type spyware easily can bypass every bit of security you have, creating horrendous security problems.

So what might spyware be costing you? We'll start by assuming a fully loaded user salary is $72,000 per year and there are 260 working days per year. If a spyware infection involves nothing more than getting rid of it when found, and that process takes the user and the support person she works with, say, two hours to fix, then we're looking at a cost per incident of:

($72,000/260 days)*((2 people * 2 hours)/(8 hours per day)) = $138.

In a 1,000-person organization with a spyware infection rate of 5% per month we would have some 600 cases per year for a total cost of around $83,000. And if a dialer goes into action that could be a low figure!

We'll consider this some more next week. Your spyware experiences to backspin@gibbs.com.

Layer 8

By Melissa Shaw

Stock up on XXL

Spam king Scott Richter is going from being the virtual monkey on your back to literally on your back.

The man recognized worldwide as the embodiment of junk mail will launch his SpamKing clothing line next month. Aimed at the hip-hop, grunge and skateboarder crowd, the hats, shirts and panties will sport sayings like "Just opt out" and "Click it."

What about the catchy "Die Scott Richter"?

www.nwfusion.com, DocFinder: 1733

Security is sweet

A new survey says 70% of Brits would trade their password for chocolate. If we were offered British chocolate, we can't say we wouldn't do the same — it's awesome.

Carried out as part of next week's Infosecurity Europe trade show, the survey entailed researchers standing outside Liverpool Street station in London and asking commuters for their logon and password. Thirty-four percent gave it up without something to sweeten the deal. People, at least hold out for the Cadbury.

DocFinder: 1735

Coolest technology ever

With the eventual wide release of its Communications Badge, Vocera has become our new favorite company.

One touch of the button on the wearable device and before you can say "Picard to Enterprise," you're connected to whomever you requested. The badge is being used in hospitals, where hands-free communication is important, as is quick access to other badge-wearing employees such as doctors and nurses. Similarly, combadges also are important on the U.S.S. Enterprise, where Starfleet officers need their hands free to fight Borg and emphasize commands such as "Make it so."

According to Forbes, the voice signal runs via Wi-Fi to a database, where a server-based application matches the name spoken to a database entry. The application then locates the requested party, activates the badges and starts the conversation, all via VoIP.

DocFinder: 1736

Thanks for nothing

A Scottish teen spent the past six months helping Microsoft fix a hole in Windows and in return got squat.

Nineteen-year-old IT pro Matt Thompson played software Good Samaritan when he found an error in Redmond's Jet Database Engine while working for a client of his employer, Aberdeen IT.

Thompson swapped code with the behemoth for months, helping it remedy a bug in which a hacker could get complete control over an affected system. For his trouble and diligence, all Thompson got was a lame one-sentence thank you on Microsoft's Web site — not even a lousy Xbox.

"Mr. Thompson said that he initially had difficulty convincing Microsoft it had a problem," the BBC says. Welcome to the club, kid.

DocFinder: 1737

Shaw is chief cook and bottle washer of Layer 8, your online rumpus room featuring the best of Network World Fusion and the not-just-networking news. She can be reached at layer8@nww.com. Shaw and colleague Adam Gaffin are sharing chair-warming duties until 'Net Buzz overlord Paul McNamara returns from medical leave.

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